TEACHERS' PERCEPTIONS OF MASTERY LEARNING

A DISSERTATION

SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE

DOCTOR OF EDUCATION

BY

WILLIAM M. TOLER

DISSERTATION ADVISOR: DR. LORI BOYLAND

BALL STATE UNIVERSITY

MUNCIE, INDIANA

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APPROVED BY:

_____	_____
Committee Chairperson	Date
_____	_____
Committee Member	Date
_____	_____
Committee Member	Date
_____	_____
Committee Member	Date
_____	_____
Dean of the Graduate School	Date

BALL STATE UNIVERSITY

MUNCIE, INDIANA

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ABSTRACT

DISSERTATION: Teachers' Perceptions of Mastery Learning

STUDENT: William M. Toler

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The concept of mastery learning was formally identified and explained by Benjamin Bloom and his colleagues in 1968. Since that time, there have been strong supporters (Guskey, 2010; Hunter, 1982; Meece et al., 2006) and critics (Anderson & Burns, 1987; Arlin & Webster, 1983; Slavin, 1987, 1989) of this strategy and the educational philosophies that support mastery learning. Several researchers have studied the relationship between mastery learning and the academic performance of students, and strong evidence exists to suggest that the application of mastery learning in the classroom not only increases academic performance but may also positively impact students' levels of motivation and their perceptions of school (Adeyemo & Babajide, 2014; Guskey & Anderman, 2013; Johnson et al., 2017; Madjar & Chohat, 2017). The purpose of this study was to explore teachers' perceptions of mastery learning. My study first sought to determine if there was a significant difference between teachers' reports of students' academic motivation levels based on whether the students received instruction using mastery learning strategies. My study also aimed to determine how effective teachers perceived mastery learning to be in improving academic achievement for students and to better understand any relationships that may exist between demographic variables and teachers' perceptions of mastery learning's influence.

The theory that provided the framework for this study was goal orientation theory, and research has supported the notion that children's experiences in the school environment were associated with the type of goal orientations they adopted, and these orientations changed their views of school and the tasks associated with the educational environment (Dweck, 1986; Kaplan & Maehr, 2007). This was primarily a quantitative study, and descriptive and inferential statistical analyses techniques were employed. Descriptive statistics were used to display the degree to which mastery learning was implemented, teachers' genders, years of experience, levels of training, content areas, grade levels, and teachers' perceptions of mastery learning's effectiveness per the researcher-designed Likert-type scale survey. In addition to the quantitative responses, qualitative responses were also collected from participants on an open-ended survey item, and responses were analyzed using evaluation coding techniques (Miles et al., 2020). This study supports the notion that mastery learning has a positive influence on student behaviors and outcomes related to academic motivation and academic achievement, and the findings in this study may serve to support educational leaders looking to encourage the implementation of mastery learning in the schools they lead.

Keywords: mastery learning, formative assessments, teachers' perceptions, academic achievement, academic motivation, goal orientation theory

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how it went is indicative of your commitment to education and doing what you believe is best for kids.

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CHAPTER ONE: INTRODUCTION

There are few, if any, elements in our society that have as great of an impact on our future as our educational system. Every day, teachers and administrators are working diligently to plan schedules, curricula, and experiences for the students they serve in order to help children become academically proficient and capable of making positive contributions to the larger community that surrounds them. Since the inception of formal schooling itself, education has evolved in pursuit of how best to educate children (Hammack, 2004; Marshall, 1962). For many years, educators have pursued the quest of planning highly engaging and effective lessons for their students, and during this time, many ideas, programs, and initiatives have come and gone. One major instructional strategy that has managed to withstand the test of time to various degrees is the notion of *mastery learning* (Guskey, 2010; McGaghie, 2015; Nolan, 2016).

The concept of mastery learning is not a new one. It was formally identified and explained by Benjamin Bloom in 1968. Since that time, there have been strong supporters (Guskey, 2010; Hunter, 1982; Meece et al., 2006) and critics (Anderson & Burns, 1987; Arlin & Webster, 1983; Slavin, 1987, 1989) of this strategy and the educational philosophies that support mastery learning. Several researchers have studied the relationship between mastery learning and the academic performance of students, and strong evidence exists to suggest that the application of mastery learning in the classroom not only increases academic performance but may also positively impact students' levels of motivation and their perceptions of school (Adeyemo & Babajide, 2014; Guskey & Anderman, 2013; Johnson et al., 2017; Madjar & Chohat, 2017). If this is truly the case and mastery learning strategies can potentially have such desirable outcomes on school environments, then why have mastery learning strategies not been implemented more broadly during the past 50 years? Do the needs of our students today match better with the experience that mastery learning-based instructional strategies can provide as we look beyond

just the academic impacts of mastery learning and consider potential impacts on the whole child? I aimed to explore these questions by gaining a better understanding of how teachers perceived the effects of implementing mastery learning strategies in their classrooms.

Problem Statement

A great deal of research has been conducted by scholars Bloom and Guskey supporting the notion that mastery learning is effective (Bloom 1968, 1971, 1987; Guskey, 2007, 2010; Guskey & Anderman, 2013). Other educational researchers have undergone studies in several fields and content-specific areas in order to investigate whether mastery learning is an effective approach for improving the academic performance of K-12 students, and many have also obtained positive results (Lee et al., 2016; McGaghie, 2015; Poliandri et al., 2018). Despite the half-century's worth of research and the fact that the use of mastery learning still exists in various forms, mastery learning has not caught on as a dominant instructional methodology in the educational system in our country.

Researchers have often analyzed how mastery learning effects the academic performance of students, and some have even studied the impact that this method can have on students' perceptions of school and their academic motivation levels. Many of these studies have concluded that the outcomes of implementing mastery learning are largely positive for students (Guskey & Anderman, 2013; Johnson et al., 2017; Lee et al., 2016; Madjar & Chohat, 2017). If mastery learning does indeed provide an instructional method by which teachers can improve the academic performance of students along with creating a more positive overall school experience, then I believe it is important for researchers to take a closer look at mastery learning's influence in the modern school environment, especially as seen through the lens of the teacher as this information may provide valuable insight into the "real-world" application of this methodology.

However, very few studies on mastery learning have been conducted from the perspective of teachers, and current studies focused on the Midwest, USA is a specific area in the body of research that is lacking.

Background

In 1968, Bloom developed the instructional method known today as *mastery learning*. The basic premise of this approach is that teachers organize the concepts they are teaching into short units of approximately 1-2 weeks in length. Following each unit, the teachers then have their students complete a short formative assessment based on the main concepts that were studied, and students are evaluated relative to a fixed standard. Based on the results of the formative assessment, students who have displayed strong understandings of the concepts then move on to enrichment activities while students who have yet to grasp an understanding of the learning goals receive feedback from the instructor and are re-taught the concept in new ways so that they have an opportunity to correct their misunderstandings. The students who partake in the corrective activities are then administered another short formative assessment in order to determine whether or not the re-teaching was effective (Bloom, 1968, 1987; Emery et al., 2018; Guskey, 2007). Figure 1 demonstrates this process.

Figure 1. The Mastery Learning Instructional Process

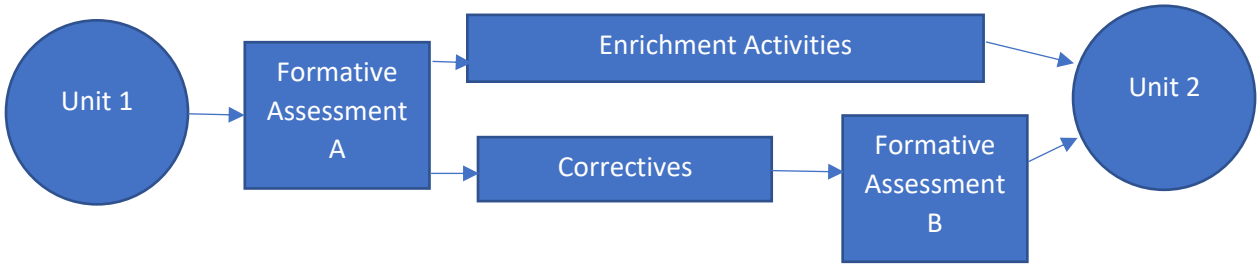

Figure 1. The Mastery Learning Instructional Process is reprinted from "Closing Achievement Gaps: Revisiting Benjamin S. Bloom's 'Learning for Mastery," by Guskey, T. 2007, *Journal of Advanced Academics, 19*(1), p. 14.

As Guskey (2007) described, teacher feedback is an essential and necessary element for any corrective activity to be effective. In order to correct students' misunderstandings of the concepts being taught, students must be given guidance on what they did not communicate correctly on the first formative assessment. It is also imperative that re-teaching of the concepts differs from the initial teaching. If students displayed a misunderstanding of the learning goal on formative A, then clearly the teaching method used at the beginning of the unit was not effective for these students and new strategies must be considered and implemented (Guskey, 2007).

> This just-in-time correction prevents minor learning difficulties from accumulating and becoming major learning problems. It also gives teachers a practical means to vary and differentiate their instruction in order to better meet students' individual learning needs. As a result, more students learn well, master the important learning goals in each unit, and gain the necessary prerequisites for success in subsequent units…it offers students a second chance at success and, hence, has powerful motivational value.
>
> (Guskey, 2007, p. 13)

Like Guskey (2007), other supporters of mastery learning have suggested that this methodology may have powerful implications beyond increases in academic performance (Lee et al., 2016; Madjar & Chohat, 2017). Mastery learning may influence students and teachers in such a way that they refocus on the value of becoming independent and motivated life-long learners who value education for the sake of gaining new knowledge and understandings. This shift in defining the purpose of our educational system is in opposition to the delivery of a curriculum that is primarily focused on preparing students for high-stakes tests (Breiner, 2015).

However, there have been critics of Bloom's notion of mastery learning. One of the earliest and most outspoken of this group was Robert E. Slavin (1987). While analyzing specific sets of standardized test data, Slavin did not find that students taking part in mastery learning received the same achievement benefits that Bloom had indicated (Slavin, 1987). Bloom responded to Slavin by explaining that the standardized test data that Slavin referred to was intended to measure achievement over a longer period of time than the experimenter-created tests that Bloom used for measuring academic growth (Bloom, 1987). Slavin (1987) also criticized the mastery learning approach in asserting that it does not benefit the top 10% of students. Bloom admitted that this may be true, but Bloom also pointed out that the remaining 90% of students do benefit, and this drastically improves the educational experience of students who are most in need; especially, at the elementary level where their confidence and interest in learning may be more fully developed and fostered through the mastery learning approach (Bloom, 1987).

As mentioned previously, the concept of mastery learning is not new to the world of educational research and many studies have been completed. Meta-analyses of studies' data sets have been compiled in an attempt to better understand the effectiveness of mastery learning. In

1988, Guskey and Pigott analyzed a sample of 46 classroom studies. Then Kulik, Kulik, and Bangert-Downs created a large meta-analysis of 108 studies in 1990. In each of these cases, it was concluded that mastery learning had a positive and significant impact on student achievement (Emery et al., 2018). In looking at students' perceptions of mastery learning, Emery went on to say, "Additionally, in studies that included such measures, students felt positively about the pedagogical approach in 16 of 18 studies and felt positively toward the course subject in 12 of 14 studies" (Emery et al., 2018, p. 420). These findings indicated that the implementation of mastery learning strategies in the classroom had positive impacts on students' perceptions of school and learning; however, there has been a lack of research investigating teachers' perceptions of mastery learning as an instructional methodology. This study has sought to fill this gap by examining mastery learning through the teachers' lens in order to more fully understand this controversial method and to assist educational leaders in making important decisions regarding preferred school-wide instructional techniques.

Purpose Statement

The purpose of this study was to explore teachers' perceptions of mastery learning. My study first sought to determine if there was a significant difference between teachers' reports of students' academic motivation levels based on whether the students received instruction using mastery learning strategies. My study also aimed to determine how effective teachers perceived mastery learning to be in improving academic achievement for students. Several independent variables were analyzed in this study including the training teachers received on mastery learning and the degree to which mastery learning was implemented, teachers' genders, teachers' years of experience, content areas, and grade levels taught. The dependent variables were the perceptions of teachers, which were collected from a survey using a Likert-type scale.

Research Questions

The research questions that guided this study are as follows:

1. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' academic-motivation levels?
2. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' overall academic achievement?
3. Are there differences in teachers' perceptions of the effectiveness of mastery learning based on demographic variables and levels of training?

Theoretical Framework

The theory that provided the framework for this study was goal orientation theory. This theory has been used for many years to study the driving forces behind students' reasons and motivation levels for such endeavors as completing homework, participating in class, and collaborating with their peers. This theory indicates that, in general, students either adopt a mastery-goal orientation or a performance-goal orientation. The mastery-goal orientation is characterized by a strong desire to develop competence and a well-developed understanding of the concepts being taught. In contrast, the performance-goal orientation is firmly rooted in the individual's desire to appear competent to those around them. As applied to my study, this theory holds that I would have expected my independent variable, the use of mastery learning instructional strategies in the classroom, to influence or explain the dependent variables, which were teachers' perceptions of students' academic-motivation levels and academic performance as measured on a Likert-type scale. I believed this to be the case as goal orientation theory was based on the notion that students could adopt either orientation for a variety of reasons; however, research has supported the notion that children's experiences in the school environment were

associated with the type of goal orientations they adopted, and these orientations changed their views of school and the tasks associated with the educational environment (Dweck, 1986; Kaplan & Maehr, 2007).

Significance of the Study

It is the duty of educational leaders to make decisions regarding policy, procedures, and professional development (Fink & Silverman, 2014). In doing so, a major goal for school leaders should be to continually enhance the educational experience for students by supporting teachers in the use of instructional strategies that engage and motivate students (Alley, 2019). Teachers are the professionals working face-to-face with students in the classroom daily, and throughout the decision-making process, today's leaders must be prepared to collaborate with teachers in fostering a positive school environment and developing a sound instructional program through the analysis of the school's curriculum, instruction, and assessment practices (Vogel, 2018). This study sought to provide data from the teachers' perspectives that will aid the educational community in determining whether mastery learning is an effective methodology in today's school environments.

Delimitations

This study was conducted between August 2020 and December 2020 in two suburban school districts with similar demographics in Northeast Indiana. Those surveyed in this study were K-12 teachers who have received various forms of training on the use of mastery learning strategies and have implemented these strategies to varying degrees in their classrooms. A few of the teachers in this sample received direct training from an expert in the field while others received training and information from their peers. For nearly all the teachers in this sample, mastery learning was not identified as a primary methodology in their classrooms before

receiving some form of training. Each school district serves a variety of students that are currently enrolled in courses that formally implement mastery learning strategies as well as courses that do not claim to utilize mastery learning.

Definition of Terms

The following key terms are defined within the context of my research study:

Mastery Learning. "Following high-quality initial instruction, teachers administer a formative assessment that identifies precisely what students have learned well and where they still need additional work. The formative assessment includes explicit, targeted suggestions- termed correctives- about what students must do to correct their learning difficulties and to master the desired learning outcomes" (Guskey, 2010, p. 53).

Mastery-Goal Orientation. This goal orientation is characterized by individuals who seek new knowledge either for the purpose of increasing their own understandings, knowledge-base, and competence or because they fear they will lack an adequate level of understanding (Dweck, 1986; Wolters, 2004).

Performance-Goal Orientation. This goal orientation is characterized by individuals who seek new knowledge for the purpose of out-performing their peers, gaining favorable judgment from others, or avoiding negative judgements of their competence (Dweck, 1986; Senko et al., 2011; Wolters, 2004).

Formative Assessment. "These brief classroom assessments measure the most important learning goals from an instructional unit and typically are administered after a week or two of instruction" (Guskey, 2010, p. 55).

Correctives. This step in the mastery learning process is utilized by teachers and students in response to gaps in learning that have been identified through formative assessments. It is an

instructional approach that is designed to provide re-teaching for students through differentiated instruction that has taken into consideration the unique needs of each individual (Guskey, 2010, p. 56).

Enrichment Activity. "These activities should enable successful learners to explore in greater depth a range of related topics that keenly interest them but lie beyond the established curriculum" (Guskey, 2010, p. 56).

Summary of Chapter One

Formal education plays a critical role in the development of our society. The instructional practices that are implemented in our classrooms influence the social, emotional, and academic development of our children. In seeking to better understand the effects of Bloom's mastery learning-based instructional strategies, this study has been viewed through the lens of goal orientation theory in pursuit of how the philosophies and strategies associated with mastery learning influence the academic-motivation levels and academic performance of students. To better understand this influence, this study has analyzed teachers' perceptions of changes in students' behavior which is an underrepresented area in the large body of research surrounding mastery learning. New understandings gained from this study are significant to educational leaders as it is the leader's duty to establish policies and practices that will enhance the educational experience for students. Research-based evidence on the effects of instructional practices is a valuable element that can inform decision-making.

Organization of the Study

This study has been organized into five chapters followed by references and appendices. Chapter One's purpose is to introduce the reader to the study and establish the study's purpose. The second chapter reviews the literature related to mastery learning and mastery learning's

development, practice, effectiveness, supporters, and critics. A description of the research design and methodologies used for conducting this study can be found in Chapter Three along with the procedures, a description of the sample selection, and the instruments used for gathering the data. Chapter Four analyzes and discusses the findings from the research, and Chapter Five presents a summary, conclusions, and further recommendations.

CHAPTER TWO: LITERATURE REVIEW

In 2002, the No Child Left Behind Act (NCLB) was enacted, and public education began a new era of high-stakes accountability. While the effects of NCLB are still being studied today, few will argue that this initiative made a major impact on the educational system in our country. There is a great deal of evidence to suggest that benefits to student achievement because of NCLB and high-stakes testing are limited; however, several negative effects of high-stakes testing on students and teachers have been documented (Breiner, 2015; Dee et al., 2013; Grissom et al., 2014; Schaefer, 2017). Dee, Jacob, and Schwartz (2013) found that teachers have spent more time focusing on the tested subject areas and on "teaching to the test" as a result of NCLB. There is also strong evidence to suggest that while more dollars have been allocated to public education in recent years, teachers who lead classes that are in the tested grade levels and subject areas are now working more hours per week than they did pre-NCLB (Dee et al., 2013; Grissom et al., 2014). In addition, the new high-stakes test environment that now surrounds public education has created a sense of instability at the local school level due to constantly changing policies at the state and federal levels (Johnson, 2013). There is no denying that the world of education was drastically affected by NCLB's creation and the accountability measure implementation of high stakes standardized testing.

In considering all of this, it is imperative that researchers and the general public take a step back to consider not only the academic impact but also the emotional and motivational toll that this high-stakes environment is having on the children that fill our nation's schools (Breiner, 2015; Rolland, 2012). As one teacher, Mary Beth Schaefer (2017), described her own experience teaching seventh grade English, she was one day interrupted by one of her students during a class discussion and asked when they would begin preparing for the state reading test. Schaefer went

on to describe how her students' perceptions of school had been very heavily influenced by the high-stakes tests with which they had become so accustomed. Her students had begun to lose sight of the true purpose of school as so much importance and resource allocation had been placed on high stakes testing in the new post-NCLB world of education (Schaefer, 2017). Educational leaders and lawmakers should closely examine the influence that policies such as those resulting from NCLB have had on students' perceptions of being life-long learners and citizens who value education. They should also analyze how these policies have impacted the ability of teachers to guide each student toward reaching his/her best self. Because of the stress placed on educators by high stakes testing initiatives, there have been teachers within the modern educational environment who plan classroom instructional time that is designed to "teach to the test" (Grissom et al., 2014). Horn (2017) counters the new high stakes testing mindset that has been infiltrating our schools as he argues that school curricula and policies should empower and guide students to take responsibility for their own learning and to view their teachers as resources for achieving their educational goals.

In addition to the changes that have occurred to the school environment under current high stakes testing initiatives is the growing need in our society for an increased focus on improving the mental health and social well-being of the children that fill our schools. School violence, teen suicide rates, and the effects of bullying are at the forefront of mass media and heated talking points in conversations surrounding school policies and practices (Bortz, 2019; Lopez-Castedo et al., 2018; Shamsi et al., 2019). In light of this, school leaders should be discussing and analyzing how policies and teachers' daily practices can foster a positive mindset in our nation's youth. Considering the changing needs of children and our society, our educational system should be proactive in leading our students to be resilient, self-efficient, and

motivated citizens. We should not continue to push ahead with policies and practices that may be ineffective in meeting the changing needs of our children and society.

As public education, school environments, and our society as a whole have clearly undergone many changes since the turn-of-the-century; educational leaders should consider the guidance and professional development being delivered to teachers and the policies being created that impact the way instruction is utilized in the classroom. Educators should also consider the potential influences of school practices on the motivation levels of students and their perceptions of school in a world that simultaneously focuses on standardized test scores and calls for the mental well-being of our children to be protected. Mastery learning is an approach that has been around for many years and previous studies have suggested positive relationships between utilization of mastery learning and students' academic motivation as well as their overall perceptions of school (Bloom, 1968; Guskey, 2007; Johnson et al., 2017; Kahraman, 2018; Lee et al., 2016). It is time that we again closely examine the influence of mastery learning on the school environment as its effectiveness may have changed along with the evolving needs of teachers and students.

Theoretical Framework

With so much national attention being paid to test performance, there is an increased need to analyze how students' academic and motivational levels connect to their perceptions of themselves and their classrooms (Rolland, 2012). This study will be viewed through the lens of *goal orientation theory* due to this need and the close connection this theory has to the philosophies behind mastery learning. Goal orientation theory focuses on *why* and *how* people attempt to achieve a task versus *what* they are attempting to achieve (Dweck, 1986; Kaplan & Maehr, 2007). Goal orientation theory provides a theoretical perspective by which the effects of

instructional methods on students' motivation in school can be researched and analyzed. While students are capable of adopting various types of goal orientations, previous research has found that specific orientations can be associated with various levels of engagement and emotional experiences in the school environment; hence, the policies and practices that a school adopts and how a teacher chooses to structure his/her classroom may directly impact how students identify their purpose for completing tasks in the classroom (Kaplan & Maehr, 2007; Meece et al., 2006).

One of the main types of goal orientation adopted by students is *mastery goal orientation*; otherwise labeled *mastery-approach goal orientation*. Students who possess a mastery goal orientation focus on learning, developing competence, and increasing their understanding of concepts and skills. "More generally, mastery goal orientation can be said to refer to a purpose of personal development and growth that guides achievement-related behavior and task-engagement" (Kaplan & Maehr, 2007, p. 142). Research has established clear relationships between mastery orientation and positive outcomes in the school setting (Meece et al., 2006). These outcomes include positive coping strategies, persistence, a transfer of problem-solving strategies, positive social attitudes, and achievement on task (Dweck, 1986; Kaplan & Maehr, 2007; Wolters, 2004). As Emery et al. (2018) describes, "…mastery-oriented classroom goal structures communicate to students that the goal is to improve competence and master skills" (p. 419). Students identifying with mastery goal orientation will often possess a growth mindset and view ability as a quality that can be developed through effort (Dweck, 1986).

Some students who can be classified as possessing a mastery orientation have adopted what is known as *mastery-avoidance orientation*. Students who adopt this approach are motivated to work in the classroom because they are trying to avoid the failure to learn and master as much as possible (Wolters, 2004). In other words, these students are not motivated by

the prospect of acquiring new skills and knowledge, rather they are motivated to work based on the self-concern that they will end up lacking skills and knowledge that otherwise could have been acquired.

The second major type of goal orientation is *performance goal orientation*, which is also identified as *performance-approach goal orientation*. Students who adopt this type of orientation are focused on demonstrating their abilities to others and managing the impressions they make on those around them. They define success by outperforming their peers; hence, not everyone is capable of being successful (Senko et al., 2011). Often times, students who are performance-orientated find value in comparing themselves to others, and while research on performance orientation has been mixed, this type of orientation is often associated with learning at a surface level versus deep engagement in the learning process (Kaplan & Maehr, 2007; Meece et al., 2006). It should be noted that there have been some theorists who have found correlations between students who adopt a performance goal orientation and higher levels of academic achievement; however, there have also been consistent research-based findings that indicated that students adopting a performance goal orientation may be more likely to cheat on assignments, display disruptive behaviors, and be less likely to effectively partake in collaborative learning (Meece et al., 2006, Senko et al., 2011).

Similar to the mastery-avoidance orientation, some students who identify with a performance goal orientation may adopt what is known as *performance-avoidance goal orientation*. These students focus on comparing themselves to their peers; however, the focus of these comparisons is motivated by their desires to not look incompetent or to have a lesser ability than their peers. They work towards learning the skills and concepts being taught in the classroom in an effort to maintain their social image or status (Wolters, 2014).

It should be noted that mastery and performance goal orientations do not exist completely independent of one another. It is possible for students to adopt different goal orientations at different times depending on a variety of factors including the concepts being studied or the tasks at hand. Some theorists even believe that the most effective approach is for each student to work towards adopting a multiple-goals perspective so that they can reap the potential benefits from mastery and performance goal orientations; however, many critics of this notion have argued that this pursuit will likely place such a cognitive burden on students that they will not achieve the desired goals from either perspective (Senko et al., 2011). Additionally, teachers and administrators can play a large role in the type of goal orientation that a student adopts based on the structure of and policies in classrooms and the school as a whole.

Many theorists more strongly associate the mastery goal orientation with positive educational outcomes over the types including the performance orientation (Dweck, 1986, Senko et al., 2011). Taking this into consideration, this begs the question, if one type of goal orientation is most beneficial to the social, emotional, and academic well-being of our students, then how do we lead students to identify with and adopt this specific orientation?

The Development of Mastery Learning

In 1968, Benjamin S. Bloom published his research article, *Learning for Mastery*. In this document, he asserted that the policies and procedures of schools supported inadequate grading and instructional practices that were damaging to students and teachers in that they did not truly aim to support all children. Bloom suggested that these policies and practices encouraged a system that identified a select number of students with talent; however, structured plans generally did not exist for the development of that talent or in fully supporting the remaining student body. In describing the educational system of the period, he wrote, "…it systematically

destroys the ego and self-concept of a sizable group of students who are legally required to attend school for 10 to 12 years under conditions which are frustrating and humiliating year after year" (Bloom, 1968, p. 1). Bloom went so far as to assert that the continuation of such an education system was not sustainable or tolerable for an extended period of time and that if students perceived learning as difficult and impossible during their school years, then the learning that needed to take place throughout their adult lives would be greatly hampered (Bloom, 1968).

One specific element of schools that frustrated Bloom was the educational community's use of and comfort with the *normal curve*. As grades were assigned by teachers, a few students received A's or F's, a few more received B's or D's, and the greatest percentage of students received C's. He elaborated on the unfairness of this distribution by pointing out that what constituted A-level work in one school may have been equal to F-level work in another. Bloom (1968, p. 2) perceived many administrators as being, "…alert to control teachers who are 'too easy' or 'too hard' in their grading," based on how their classroom grades were dispersed. He felt that students' grades should be based on their mastery and understanding of the concepts being taught in the classroom, and school communities should be working towards helping all students achieve mastery. While many educators and community members expected grades to follow the normal curve, Bloom felt that in actuality the normal curve represented how unsuccessful our education system was in that so many students were not achieving A-level grades in school (Bloom, 1968).

In searching for an answer to the problems Bloom described, he developed the concept of *mastery learning*, which was derived from the work of several other researchers including John Carroll (Bloom, 1968; Guskey, 2001). Bloom recognized that if teachers only taught to classes as

groups and did not focus on the needs of the individuals, then students' scores would reflect their "aptitudes" for the subject matter and grade distributions would likely follow a normal curve. Bloom agreed with Carroll (1963), however, in that aptitude was simply a reflection of the amount of time it takes a student to master a task or concept, and with enough time, every student was capable of achieving mastery (Bloom, 1968; Guskey, 2001).

Bloom was convinced that approximately the top 5% of students in an aptitude distribution possess a unique talent for a given subject. He also believed that the bottom 5% of students in the same distribution will likely have a specific learning disability. Bloom felt strongly that the remaining 90% of students could master the content and concepts they were being taught given enough time. Combining the large middle group with the top 5%, Bloom (1968, p. 3) wrote, "We are convinced that the grade of A as an index of mastery of a subject can, under appropriate conditions, be achieved by up to 95 percent of the students in a class." The two main factors that contributed to this huge majority of students reaching mastery were time and effective learning conditions, and the more efficient and effective the learning conditions were, the less time it took for students to achieve mastery-level understandings (Bloom, 1968).

In describing what quality instruction looked like in an effective learning environment, Bloom clearly stated that one right answer did not exist. The perfect learning environment that would work for all students was not characterized by the teacher, the adopted textbook materials or a specific instructional strategy. What was important was that these elements matched what was most needed by the individual learner; hence, the learning environment had to become capable of adapting to the needs of the individual (Guskey, 2007). For example, some students learned best by working independently while others needed more direct instruction from their

teachers. In order for this type of environment to exist, teachers had to know and understand the unique needs of their students and focus on their areas of improvement to guide them towards mastery. "The teacher should come to recognize that it is the learning which is important and that instructional alternatives exist to enable all (or almost all) of the students to learn the subject to a high level" (Bloom, 1968, p. 6). Incorporating a variety of high-quality, research-based strategies to differentiate for students is not unique to mastery learning as many popular instructional designs such as Response to Intervention (RTI) and Understanding by Design (UBD) share this important characteristic (Guskey, 2010).

In addition to the decisions and actions of the instructor, Bloom felt that another key element in a student's path to obtaining mastery was *perseverance*. He believed that students entered the educational environment with different levels of perseverance based on the tasks they were completing. Students who were completing tasks that they found to be rewarding tended to stay engaged in those tasks for longer periods of time. Conversely, when students did not find value in the tasks before them, they tended to give-up more quickly. Bloom believed that a student's perseverance for a given task could be improved by increasing the frequency of success for the student. By breaking the concept being taught into smaller, more manageable chunks, the students were more likely to stay engaged with the tasks when they found success at various points along the path to mastery (Bloom, 1968).

Bloom acknowledged that one possible solution to helping every child achieve mastery was to provide each child with an individual tutor; however, he also recognized that this solution was too costly to be practical for all students. In searching for a solution that could be implemented in schools at the time, Bloom and his colleagues at the University of Chicago created what is known today as *mastery learning* when they developed an instructional

methodology that focused on using diagnostic assessments that would guide teachers in providing students with alternative instructional strategies in addition to the traditional group-based instruction that was taking place in most classrooms (Bloom, 1968, p. 8-9). Specifically, Bloom and his colleagues planned out courses so that they were divided into smaller units of one two weeks. At the end of each unit, students would then complete a formative assessment that would either confirm that the students had mastered the content thus far or would identify the areas with misunderstandings in the learning process for individual students. Formative assessments could take many forms including quizzes, oral presentations, and performances; the most crucial element of any formative assessment was that it provided evidence of student learning to the teacher (Guskey, 2010). For students with identified gaps in their learning, it was essential that the instructor then helped those students find new ways of learning the content and concepts being taught in order to correct their misunderstandings before moving on in the course (Bloom, 1968; Guskey, 2007). Corrective activities would add up to 20 percent more time to initial units of instruction; however, this time would be gained back in later units as the prerequisite foundations for students became more complete (Guskey, 2010). For the students who demonstrated mastery on the first assessment, the teacher could ensure that learning progress continued by providing these students with self-selected enrichment activities such as academic games or multimedia projects that allowed students to expand their understandings in high-interest areas (Guskey, 2007, 2010). Another valuable use of time for students who demonstrated mastery early in in the learning process was peer-tutoring, which allowed faster and slower learners a chance to work together and provided slower learners with a different instructional approach that may have been exactly what they needed to achieve mastery-level understandings of the learning goals for the unit (Guskey, 2010).

It should also be noted that Bloom and his colleagues believed that formative assessments were not to be assigned grades. Formative assessments were to be viewed as part of the learning process and not a final evaluation of what a student knows or can do. These types of assessments were also valuable reflection tools for instructors in that they provided feedback on how well the instructional strategies that were utilized had worked (Bloom, 1968).

Bloom openly admitted that he experienced successes and failures in his early attempts to implement mastery learning, and there were specific preconditions that had to exist in order for mastery learning to be effective. Firstly, instructors had to be capable of defining what mastery meant for a given task or concept, and they had to be able to identify and collect evidence that a student had achieved it. Instructors also had to be able to design summative assessments that accurately measured the students' attainment of previously identified learning objectives for the courses they were leading. The summative assessment was a tool that not only measured each student's level of understanding but could also then be used to evaluate whether the instructional process that had taken place was effective (Bloom, 1968, p. 9). Bloom also felt very strongly that teachers should use absolute standards as opposed to comparing students to one another. Bloom argued that this practice coupled with a classroom environment that strove to bring all students up to the predetermined subject-area-specific standards would foster a greater sense of intrinsic motivation in students (Bloom, 1968; Guskey, 2007).

Bloom first tested his mastery learning methodology in a course on *test theory*. Using parallel achievement tests, 20% of students achieved the grade of "A" in the course in 1965, and 80% received an "A" grade in 1966 after mastery learning was utilized in the class. The mastery learning process was then fine-tuned, and in 1967, 90% of students in the same course and using the same achievement test received "A" grades (Bloom, 1968, p. 11). Despite those positive

results, Bloom was realistic regarding the notion that mastery learning would likely experience many negative outcomes as well as positive ones. As Bloom wrote, "…the point to be made is not that a single strategy of mastery learning can be used mechanically to achieve a particular set of results" (Bloom, 1968, p. 11). He wanted teachers to view the mastery learning process as a chance to catch the mistakes and misunderstandings that students were making in the classroom so that they could then study the various instructional approaches in an attempt to determine which strategies truly worked best for the various types of learners in their classrooms.

Bloom firmly believed that the approach to learning provided by the mastery learning process was better for students than the traditional approaches to education that were dominating our schools. He explained that not only did mastery learning improve the academic performance of students, but it also increased students' interests in school and their motivation (Guskey, 2007). Bloom also believed that the frequent and positive public recognition for which mastery learning easily provided would improve students' self-concept and self-esteem, which would ultimately lead to more positive mental health outcomes for society as a whole. Overall, as Bloom pointed out time and again, one of the most valuable benefits that mastery learning could provide for our students was a life-long interest in and love of learning, which would benefit students for the rest of their lives (Bloom, 1968).

Critics of Mastery Learning

Despite the research presented by Bloom and Guskey supporting mastery learning, there have been several critics of the methodology who proposed that it was not as effective as its proponents suggested (Anderson & Burns, 1987). Those who criticized and spoke-out against the methodology asserted that the application of mastery learning was not truly effective when utilized in a real-world setting, and that there was a cost to be paid by teachers and students when

mastery learning was implemented in classrooms (Arlin, 1982; Arlin & Webster, 1983; Slavin, 1987).

One major concern presented by opponents of mastery learning was the time cost of implementation (Arlin & Webster, 1983). Bloom and his supporters acknowledged that it would take teachers a greater amount of time to complete units of instruction during the early stages of integrating mastery learning into their classrooms. This was due to the process of administering formative assessments, diagnosing students' misunderstandings, and then providing corrective measures to students before re-evaluating the students and moving on in the learning process. Mastery learning theorists, however, argued that this loss of time was only temporary and that classrooms utilizing mastery learning would eventually reach a "vanishing point" as students with larger gaps in their learning began to more closely match their peers in terms of their knowledge and understandings of the concepts being presented in the classroom (Bloom, 1971).

Arlin and Webster (1983) pushed-back against the notion of a "vanishing point," and argued that while this balancing point may never manifest itself, the loss of instructional time in the classroom came at too great of a price. They tested mastery learning's implementation in a variety of instructional settings, and the results of their tests indicated that mastery learning was very effective in increasing student achievement; however, this increase in achievement came at a great time loss that would ultimately work against any initial gains that were achieved. It was noted from their research that, "Mastery students required almost twice as much time as nonmastery students" (Arlin & Webster, 1983, p. 193). Because of the large amount of time it took to help lower-ability students reach mastery, they found it difficult to believe that Bloom's "vanishing point" would ever be reached. In fact, when Arlin (1982) interviewed elementary teachers who had implemented mastery learning strategies in their classrooms over an extended

period of time, the teachers felt that students were learning at a much deeper level; however, the amount of time that it was taking slower students to reach these levels was problematic in that there were simply not enough minutes in the school day. Teachers were "stealing" minutes from other subject areas, recess time, and enrichment classes such as art in order to remediate the slower learners. These same teachers made several comments that reflected the difficulties they were having in providing quality enrichment activities for the students who displayed mastery early in the learning process (Arlin, 1982).

Perhaps one of the most outspoken critics of Bloom's mastery learning was Robert E. Slavin. Slavin agreed with Arlin that the utilization of mastery learning in the classroom was essentially a "Robin Hood" approach to instruction (Slavin, 1987). Slavin openly admitted that he was not opposed to mastery learning in principle; however, he argued that the extensive amount of extra time it took the teacher to remediate the slower learners in the classroom in Bloom's group-based model was at the detriment of the higher achieving students (Slavin, 1989). Slavin also took issue with the experimenter-made assessments that Bloom's supporters were using as evidence of mastery learning's effectiveness. Slavin argued that these results were greatly skewed and when he analyzed student achievement results in longer-term studies with larger groups of students and standardized achievement measures, he found the positive effects of mastery learning to be significantly lower than what the proponents claimed (Slavin, 1987). In fact, Slavin and Karweit conducted a year-long study of mastery learning's effectiveness on mathematics achievement and found no difference between the achievement levels of students who received mastery learning-based instruction and the control group that did not (Slavin, 1989).

As Anderson and Burns (1987) pointed out in their analysis of Slavin's research, "…the purpose of most of the experimental research on mastery learning, particularly those studies conducted by students of Benjamin Bloom, has been the investigation of what is *possible*, not what is *likely*" (p. 215). They went on to explain that because mastery learning was based on both a philosophy and a set of instructional strategies, it was difficult to find research studies either supporting or denouncing mastery learning without the researchers own values impairing the selection of data used for analyzing mastery learning's effectiveness (Anderson & Burns, 1987).

Support for Mastery Learning in Practice

Although there have been criticisms of mastery learning, there has also been substantial research supporting mastery learning in practice. These results have suggested benefits for students such as increased academic achievement, higher levels of motivation, the development of effective coping strategies, and an overall positive attitude toward the school experience (Guskey, 2007; Kahraman, 2018; Lee et al., 2016; Madjar & Chohat, 2017). Mastery learning was not designed to be a scripted program that follows a rigid schedule, and its use should not be limited to simple skills and concepts (Guskey, 2007). Mastery learning has been found to be most effective when implementation is led by reflective, flexible teachers, and research supports the effectiveness of mastery learning when it is applied to higher-order thinking skills (Guskey, 2007).

In 2015, Madjar and Chohat published their study of the effects of the mastery goal structure on students making the transition from elementary to middle school. In their study, they emphasized the importance that mastery learning places on student effort and the ability to make mistakes and corrections in the learning process (Madjar & Chohat, 2017). For students who

perceived their teachers as taking a mastery approach, these students displayed higher levels of transition self-efficacy and a positive correlation was made between emotional and behavioral engagement for the students at the middle school level (Madjar & Chohat, 2017).

Similarly, Lee et al. (2016) wrote about the negative change that many students experienced in their interest in science as they entered middle school. The authors detailed the vital role that motivation played and examined the differences made by various goal structures. Ultimately, Lee et al. recommended that teachers should take a mastery learning approach by employing true formative assessment methods while simultaneously providing students with authentic activities that will build confidence in their learning. In their research, the authors found that this combination of strategies was directly linked to increased student engagement and academic achievement (Lee et al., 2016).

Adeyemo and Babajide (2014) specifically studied the effectiveness of applying a mastery learning approach in secondary physics classrooms. As they sought out a solution to low performance and low interest in this challenging subject area, Adeyemo's and Babajide's study divided 160 students into two groups. One group received physics instruction using traditional methods and the other group received instruction utilizing mastery learning strategies. The results of their study clearly indicated that the students exposed to the mastery learning approach performed far better than their peers, and this was believed to be due to the strong emphasis that was placed on corrective feedback and remediation (Adeyemo & Babajide, 2014, p. 918). They also found that the students receiving mastery learning-based instruction had more positive attitudes towards the subject area, and the researchers ultimately concluded that the mastery learning approach was effective in the secondary physics classroom; hence, mastery learning's

implementation as well as increased teacher training in mastery learning strategies was recommended (Adeyemo & Babajide, 2014).

In Turkey, Kahraman (2018) studied the motivational beliefs and coping strategies of seventh graders based on their adoption of mastery or performance goals. The results of Kahraman's research found that students who adopted a mastery goal orientation were much more likely to use adaptive coping strategies when facing academic failure than were their performance goal-oriented peers. This same study found that the mastery-oriented students possessed higher levels of self-efficacy and found higher levels of value in school-related tasks. Kahraman's final recommendation is that science teachers should adopt a mastery learning approach in their classrooms while simultaneously implementing a variety of tasks that are relevant to students' lives (Kahraman, 2018).

The value of mastery learning in practice goes beyond the core content areas. Johnson et al. (2017) described the motivational and achievement benefits of creating a mastery learning climate in the physical education (PE) classroom. Much like the climate created in a math or science class, the mastery climate in a PE classroom focuses on self-referenced criteria to gauge growth and improvement. "Research in sport and PE contexts consistently shows that a mastery climate is associated with adaptive outcomes, such as positive self-perceptions, enjoyment, and motivated behaviors…" (Johnson et al., 2017, p. 399). This type of environment increased the students' positive perceptions of school and motivated them to be more physically active in PE. Conversely, Johnson et al. (2017) also described the negative impact that a performance-oriented climate can have on students during PE class when norm-referenced criteria were used for measuring success. This performance-oriented environment was shown to lead to lower levels of motivation and higher levels of anxiety in students.

This research and the student experiences described within each study suggest that the implementation of mastery-learning strategies has the potential to lead to positive benefits for students. While these benefits include increased academic achievement, mastery learning may also provide emotional and social advantages for students. This is based on the idea that when students are taught in an environment where mistakes are considered an acceptable and necessary part of the learning process; students begin to experience increased confidence and motivation levels. This may also lead to an overall increased sense of enjoyment while at school. Classrooms utilizing mastery-learning strategies more readily promote the mastery-approach goal orientation in their students, and this mindset lends itself to students finding self-value in their own learning and a decrease in the value students place on comparisons to the performance of others as promoted in a performance-goal oriented environment.

Teachers' Perceptions of Mastery Learning

Before mastery learning strategies are put into practice, one essential element that must be present is the belief by all teachers that all students are capable of learning the content and concepts being taught at a mastery level. One of the primary theories that supports the mastery learning philosophy is that all learners are capable of mastering the content given the proper instructional techniques and an adequate amount of time (Bloom, 1968). Teachers must enter the classroom with this belief in order for mastery learning to be fairly and fully implemented. "High expectations of success affect the success level of students to a great extent" (Goksoy, 2018, p. 213).

Goksoy (2018) interviewed 15 teachers who had implemented mastery learning and found that a majority of these teachers did not perceive mastery learning to be effective in the classroom. In further analyzing teachers' responses, Goksoy found that a majority of these

teachers did not believe that all students could learn all areas of a particular subject due to varying levels of individual characteristics such as intelligence, talent, and interest. He concluded his study with the recommendation that a school-wide understanding should be established that all students are capable of learning what is being taught to them (Goksoy, 2018). In order for this to be accomplished, the appropriate school climate must be established through a collaborative effort between teachers, parents, and administrators who work together to align professional development, research, policies, and practices that support all learners.

In analyzing teachers' perceptions of mastery learning at Millennium School, Emery et al. (2018) described several positive and negative teacher perceptions. Teachers at Millennium believed that inquiry-based projects utilized with a variety of task-types presented the best method of instructional delivery in the mastery-oriented environment. However, similar to Goksoy's findings, teachers reported that many students at the middle school level were not ready for the higher-level thinking that was being asked of them (Emery et al., 2018, p. 426). These middle school teachers perceived their students to need more "concrete" instruction, and they felt that middle school students were not ready for the responsibility and ownership that was required for the mastery learning environment to be successful. One teacher was quoted as stating, "I guess I feel the whole mastery system really encourages procrastination" (Emery et al., 2018, p. 432). Some teachers also perceived students as "giving-up" when they repeatedly struggled to reach the 90% threshold that was required, and these teachers felt like expecting A-level work from every student was not necessarily in the best interests of all students. On the positive side, teachers did perceive the mastery learning-based environment as one that communicated to students that "failure isn't permanent" (Emery et al., 2018, 432). Teachers also felt that the Millennium School's atmosphere was very supportive of teachers and students, and

they attributed this supportive environment to a decrease in classroom management issues, which led to an increase in time focused on learning while students were in the classroom.

The two studies described above are standouts in the body of research representing mastery learning in that they focus on teachers' perceptions. While numerous studies have been conducted related to mastery learning's influence on student achievement and the school environment, the perceptions of teachers appeared to be an underrepresented area of research and worthy of further exploration. Because teachers are the professionals charged with fostering students' educational and social-emotional growth on a daily basis, I believe that their perceptions of mastery learning represent an essential element in determining the approach's overall effectiveness in today's school environment.

Mastery Learning and School Policy

School principals hold the power to positively impact the environment of their schools and the academic achievement of the students entering their buildings daily (Vogel, 2018). In order for principals to make a positive difference in their school communities, it is critical that they have the support of their central office leaders through clear goals and professional development that supports instructional leadership (Fink & Silverman, 2014). Educational leaders should carefully craft the curriculum and assessment policies in their schools and districts and take into consideration the effects of various research-based strategies such as mastery learning, which may directly influence students' motivation and perceptions of school. Educational leaders and teachers should carefully examine teaching practices and what these practices communicate to students regarding the value placed on learning. School officials should also consider whether daily practices align with the expectations communicated by the established rules and policies. "Assessing students against a fixed standard rather than relative to

one another, providing formative feedback, and providing students with the time and resources to master material are all consistent with communicating an emphasis on learning and development" (Emery et al., 2018, p. 422).

Emery et al. (2018) directly analyzed the impact of mastery learning on the middle school environment in a large, Midwestern school, known in their study as Millennium School (pseudonym). This high-performing school had implemented a school-wide mastery learning structure at the middle school and high school levels. In understanding how the school policies reflected this approach, one must look towards the benchmarks that had been set for students and teachers. At Millennium School, students were required to earn a 90% or higher on assignments and assessments in order to demonstrate "mastery." For students who did not meet this score, some form of remediation was put into place to guide these students toward a better understanding of the standard being studied. This 90% threshold extended even to the summative score, which indicated completion of the course. A student who reached the 90% or higher was assigned an "A" for the course and a student who did not was assigned "Work-In-Progress." It was expected at Millennium School that every student would need to remediate an assignment and/or course at some point in time and the number of attempts were not recorded in the students' permanent records (Emery et al., 2018, p. 423).

Emery et al. (2018) concluded that the implementation of a school-wide master learning system proved difficult and in the case of Millennium School, sent mixed messages to the students. The qualitative data displayed that this environment did foster a strong sense of social support amongst students, teachers, and administrators; however, the 90% threshold that was required of students had unintended consequences on students' perceptions of the school environment and the goal orientation with which they identified. Teachers openly recognized and

praised students for achieving the 90% goal, and this caused students not achieving the goal to take on a performance orientation viewpoint in comparing themselves with their peers and viewing the need for remediation as a form of failure. Students also viewed the extra time that was required for remediation practices as a burden and a form of punishment. These factors worked against the mastery goal orientations that the school administrators were working towards fostering within the students at Millennium School. "Thus, school-level-mastery-learning policies and their instantiation in classes must be examined critically and in concert to ensure they work together to send consistent messages to students" (Emery et al., 2018, p. 438).

There are several lessons that can be learned in considering how school-wide mastery learning policies were implemented at Millennium School. Virtually everyone in our country has some form of contact with our nation's schools or is directly impacted by schools in some manner. Policymakers create school policies as guidelines and rules that are designed to direct the daily operations of our schools including the content and concepts being taught in classrooms. School leaders must be acutely aware of the gap that may exist between school policies as they are written and the actual practices that are taking place in the school environment. Policy and administration do not exist in separation of one another, and it is the duty of school leadership to ensure that policies are being appropriately interpreted and implemented. While school policy should be driven by research, it often times is driven by perceptions and beliefs that may be in sharp contrast to the recommendations supported by current research; hence the difficulty that often arises in carrying out the task is that practitioners often make adjustments to meet the "real-world" needs of their students, and "policy in use" does not match policy exactly as it is written (Sergiovanni et al., 2009, p. 50-51).

In order for mastery learning to be used effectively in the school-wide environment, teachers and administrators have to be on the same page regarding what mastery learning is and what it looks like in practice. One of the first steps towards achieving this goal is the deliberate and thoughtful use of carefully planned professional development time. Martinez and McGrath (2015) analyzed the practices of several secondary schools that had made huge gains in preparing their students for college and engaging in deep-thinking practices. The authors clearly supported the notion that the use of professional development dollars by educational leaders is a decisive factor in the success of schools, and they pointed out that the design and use of formative based assessments should be an element present in these endeavors (Martinez & McGrath, 2015, p. 19). As the effective use of formative assessments is at the very heart of Bloom's mastery learning concept, school administrators must ensure that there is a unified vision and understanding amongst the staff in each building that chooses to implement mastery learning. Teachers need to understand that these strategies do not fit into a specific program, but instead, teachers should feel empowered to make decisions in their classrooms that will lead to corrections in misunderstandings for students, and ultimately, will lead to supportive, learning-centered classroom and school environments.

Educational decision-makers should also consider how their current school policies and rules support high levels of motivation and positive perceptions in students. Are students ever allowed to make corrections to quizzes or tests? Are teachers required to utilize true formative assessments in their units? What type of feedback for their learning do students and parents in your school expect? The answers to these questions can guide school leaders in beginning to understand the goal orientations that are conveyed in their schools and how the written and unwritten rules in their buildings can either support or sabotage mastery learning strategies.

As Meece et al. (2006) noted, there have been researchers and schools that have used the mastery goal orientation to guide school reform. In these cases, parents, teachers, and administrators worked together over the course of several years to analyze their school policies and practices in relationship to goal orientation theory. Ultimately, these school systems that changed their policies and practices to reflect an emphasis on the development of mastery goal orientations in their students experienced a number of positive outcomes including students who were more intrinsically motivated to learn (Meece et al., 2006).

Gaps in Research

Since Bloom and his colleagues first introduced the concept of mastery learning nearly 50 years ago, it has been implemented in "pockets" around the world. Many studies have been conducted supporting the positive benefits of mastery learning, yet a handful of scholars and practitioners have also criticized the effectiveness of mastery learning. For supporters and naysayers, the majority of research that exists is based either on changes in academic achievement as measured by test scores or the perceptions of students. Studies that utilize the perceptions of teachers have been limited, and this under-represented viewpoint may provide valuable insight into the effectiveness of mastery learning for the profession of education. Furthermore, updated research that reflects the perceptions of the professionals working first-hand with students can be beneficial and worthwhile when consideration is given to the many changes that schools and the general society have undergone during recent decades.

CHAPTER THREE: METHODS

The instructional methodology of mastery learning was first established more than 50 years ago (Bloom, 1968). Early in the inception of mastery learning, there was a great deal of research that took place in order to establish whether it was effective and efficient in increasing academic achievement for students (Anderson & Burns, 1987; Arlin & Webster, 1983). The initial interest in mastery learning by researchers produced varying results; however, there was positive support for mastery learning's effectiveness (Anderson & Burns, 1987; Guskey, 2001). During the past five decades, mastery learning has managed to stay present in the world of education for researchers and practitioners alike, although the support and integration of mastery learning strategies only appear in small pockets around the world. The more current research that does exists continues to largely support the increases in academic achievement as well as the motivational benefits for students that can be achieved from utilizing this methodology (Johnson et al., 2017; Kahraman, 2018; Lee et al., 2016; Madjar & Chohat, 2017). I believe that it is time for researchers to revisit the effectiveness of mastery learning in a world where our educational systems and our society as a whole are very different from the environments that existed when mastery learning was first established (Dee et al., 2013; Grissom et al., 2014; Hammack, 2004). In particular, I am interested in gathering teachers' perspectives of mastery learning when utilized in current school settings as examined through the theoretical framework of goal-orientation theory.

In this chapter, the research methods for this study have been defined and described. As in Chapter One, this chapter includes the purpose and research questions, which have guided this study. The research design, sampling, and participants have also been described, and the instrumentation has been included. The details for collecting data and the plan for analyzing

these data have also been outlined. This chapter concludes with the limitations for this study and a summary of this chapter.

Purpose Statement

The purpose of this study was to explore teachers' perceptions of mastery learning. My study first sought to determine if there were significant differences between teachers' reports of students' academic motivation levels based on the levels to which students received instruction using mastery learning strategies. My study also aimed to determine how effective teachers perceived mastery learning to be in regard to students' academic achievement. Several independent variables were analyzed in this study including the degree to which mastery learning was implemented, teachers' genders, years of experience, levels of training, content areas, and grade levels. The dependent variables were the perceptions of teachers about mastery learning, which were collected from a survey using a Likert-type scale.

Research Questions

The research questions that guide this study are as follows:

1. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' academic-motivation levels?
2. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' overall academic achievement?
3. Are there differences in teachers' perceptions of the effectiveness of mastery learning based on demographic variables and levels of training?

Research Design

This was a survey-based research study that primarily utilized quantitative data. For this study specifically, my sample included teachers from two separate school districts that border

one another in northeastern Indiana. Each school district received similar training on mastery learning strategies from an expert in the field, Dr. Thomas Guskey. After receiving this training, several teachers then began implementing mastery learning strategies into their classroom. This implementation represented the treatment for this study, and the effects of the treatment were measured through the use of a survey that measured teachers' perceptions post-treatment. The survey utilized a Likert-type scale and asked teachers for responses related to changes in students' academic-motivation levels, perceptions of school, and academic achievement. The survey also contained one open-ended response item, and teachers were asked to provide narrative comments in response to the statement, "Please describe the type of students for which you feel mastery learning is most beneficial."

Description of Training

For each school district that participated in this study, all teachers were offered an opportunity to complete optional training related to the implementation of mastery learning during the summer of 2017 and throughout the 2017-2018 school year. The training was led by Drs. Thomas Guskey and Laura Link. Dr. Guskey worked directly with Dr. Bloom at the University of Chicago and is widely known as one of the leading experts on mastery learning. During the time of the training, Dr. Link worked for Indiana University Purdue University Fort Wayne (IPFW) and worked closely with Dr. Guskey in planning and providing training to each school district.

The training consisted of four full-day, in-person sessions, four online sessions, site visits at schools, and small group meetings. The multi-day training sessions occurred during the summer and continued throughout the school year as the teachers experimented with the implementation of master learning methodologies in their classrooms. As the initial year of

training progressed, the teachers collected various forms of student assessment data from their classes in order to make comparisons with student cohorts from previous years. In each building in the school district, the teachers completing the formal training also met on a regular basis and collaborated frequently along with their building administrators throughout the process. The teachers who took part in and completed the formal training sessions were given the option of receiving college credits from IPFW if they chose to do so.

Once the initial year of training with Drs. Guskey and Link was completed, the teachers who had implemented the mastery learning methodologies in their classrooms began meeting with their colleagues to share their experiences with mastery learning. The formally trained teachers became the peer trainers, and during these meetings with teachers and administrators, the teachers would ask one another questions and work through various ideas for how the mastery learning methodologies could be applied in various settings and content areas. These collaborative sessions ultimately led to the adoption of mastery learning methodologies by several teachers who did not complete the formal training sessions with Drs. Guskey and Link as the formally trained teachers became the "peer trainers" for other teachers.

Description of Sample

The sample in this study included teachers in two high-performing school districts in northeastern Indiana. These districts were chosen because of their deliberate work with Dr. Thomas Guskey in educating their teachers on the application of mastery learning. Approximately 150 teachers took part in the mastery learning training provided by Dr. Guskey; however, all teachers with greater than one year of experience and who self-identified as utilizing mastery learning methodologies in their classrooms were invited to participate in this

study. These teachers worked with students in grades kindergarten through twelve, taught in a variety of content areas, and varied greatly in years of teaching experience.

In describing the students for each of these districts, it can be said that the teachers in both districts serviced similar student populations. During the 2018-19 school year, District A was 84.1% white and District B was 79.5% white with the remainder of the populations for each district being represented nearly equally by a variety of ethnic groups (Indiana Department of Education [IDOE] Compass, 2019). The free/reduced lunch population for District A was represented by 19.1% of the student population while 17% of District B's students were included in the free/reduced lunch percentage (IDOE Compass, 2019). Each district had consistently posted standardized test scores well above the state averages, and each district received A letter grades from the state in 2019 (IDOE Compass, 2019). District A did service a larger special education population at 12.6% of their student population while only 8.4% of District B students fell into the special education category (IDOE Compass, 2019). Overall, these two districts were found to be similar in terms of their student demographics.

Instrumentation

I designed (see appendices A and B) a survey to meet the specific needs of this study, which was reviewed by an expert panel and also pilot tested. I then administered the survey electronically to teachers in two school districts in order to better understand their perceptions of the effectiveness of mastery learning methods in the school environment. The survey contained 36 questions and was divided into three parts. The first section contained 13 questions and was designed to collect demographic data, mastery learning training information, and overall perceptions about mastery learning from teachers. The second section consisted of 15 questions and was designed to collect teachers' attitudinal information regarding their perceptions of

mastery learning's effect on students' academic motivation. The final section contained eight questions and was designed to gauge teachers' perceptions of mastery learning's effect on students' academic performance. For each question in sections two and three, teachers' perceptions were quantitatively measured based on a five-point Likert-type scale (1 = greatly decreased, 2 = slightly decreased, 3 = remained the same, 4 = slightly increased, 5 = greatly increased).

The survey utilized in this study was administered to teachers post-treatment as they have been implementing mastery learning strategies in their classrooms at varying levels for up to three years following training on mastery learning. Before launching the survey, an expert panel reviewed and made recommendations to the survey to ensure validity. Changes and improvements were made in the language and sequencing of the survey questions to improve readability, then the Likert scale questions were assessed for reliability through Cronbach alpha analysis for the Likert scale questions related to academic motivation. For the 15 items related to motivation, the Cronbach alpha score was .880. For the eight survey items measuring academic achievement, the Cronbach alpha score was .864. Both of these scores are considered good and indicate high internal consistency and reliability (Gay et al., 2006).

Data Collection

Permission to survey teachers was received from each school district prior to the survey administration taking place. Each teacher was then asked to agree to an informed consent form prior to being surveyed. During the winter of 2021, the surveys were administered electronically through Qualtrics to the sample of teachers and their responses have been kept confidential. Teachers could choose not to participate in the study or withdraw from the study at any time.

Data Analysis

This was primarily a quantitative study, and I employed descriptive and inferential statistical analyses techniques. Descriptive statistics were used to display the degree to which mastery learning was implemented, teachers' genders, years of experience, levels of training, content areas, grade levels, and teachers' perceptions of mastery learning's effectiveness per the Likert-type scale questions. The reported descriptive statistics included frequencies, means, percentages, and standard deviations to describe the participants' demographics and perception responses.

The inferential statistics utilized in this study were t-test and analysis of variance (ANOVA). A t-test is designed to compare the mean and variance of one group's responses with the mean and variance of another group or of the overall sample (Howell, 2013, p. 178). An ANOVA is like a t-test; however, it allows multiple means to be compared and analyzed at one time (Howell, 2013, p. 326).

Specifically, a one-way ANOVA was utilized to analyze the differences between the demographic questions in part one of the survey and the preceding perception-based questions, which focus on academic motivation in part two and academic performance in part three. For example, the grade levels taught were analyzed in comparison to the questions related to potential changes in students' academic motivation. ANOVA was also useful in analyzing the individual perception-based questions in comparison with the teachers' overall perceptions on how often mastery learning was effective and for what percentage of students it was effective. It should also be noted that the questions in my survey are based on research related to mastery learning and the specific characteristics of mastery and performance goal orientations as outlined in my theoretical framework. In analyzing the results of my survey, I feel that I better understand

teachers' perceptions of how the implementation of mastery learning has influenced students to adopt individual characteristics specific to each goal orientation.

In addition to the quantitative responses, qualitative responses were also collected from participants on the open-ended survey item, "Please describe the type of students for which you feel mastery learning is most beneficial." Teacher responses were analyzed, and this information was then used to assign codes using evaluation coding techniques (Miles et al., 2020). The first round of coding assigned a label to the response presented when it addressed an area of academic motivation or academic achievement. The second round of coding then assigned a label to each response based on the type of student described: high achievers, midlevel achievers, or low achievers. Finally, a + or – was attached to each coded label based on whether the information indicated mastery learning as having a positive or negative influence in the particular area discussed. Through this coding process, I was able to search for patterns in these data, and several relevant themes and subsequent subthemes emerged.

Limitations

This study had limitations related to sample size, geographical locations, and teacher variability. While the sample size for this study provided data that can contribute to the research on mastery learning's effectiveness, the sample size was not large enough to stand alone in making conclusive results for the state's or nation's educational community. It should also be noted that each district utilized for this study represented suburban communities with similar demographics. Teachers' perceptions of mastery learning and the components analyzed in this study may differ in urban or rural communities that serve students with differing experiences and backgrounds. Teacher experiences and attitudes were also limiting factors in this study as many of the participating teachers initially volunteered to take part in the mastery learning training and

these individuals possessed an array of years of experiences and taught in a variety of content areas. The teachers also received varying levels of training as some were directly trained by an expert in the field, some were trained by their peers, and others have implemented mastery learning based on their own acquired knowledge and understandings. It is also possible that survey data based on teachers' perceptions may have been skewed by individual beliefs as supporters of mastery learning may have exaggerated the methodology's effectiveness while those who do not support mastery learning may have chosen not to respond to the survey. Finally, it should be noted that the survey utilized in this study partially relied on teachers' memories as the survey only measured teachers' perceptions post-treatment, and survey data was not collected before the mastery learning training took place.

Summary

Based on my interest in mastery learning, I analyzed teachers' perceptions of mastery learning in relationship to the methodology's potential influence on students' academic motivation and academic performance. Through this analysis, I hope to shed light on mastery learning's viability in today's classroom environment. This chapter described the research methodology that has been used to complete this study. As in chapters one and two, the purpose of this study and the research questions that have guided this study have been included. This chapter also included an explanation of the research design that has been used, and a description of the two districts that were sampled. The instrumentation for this study including the creation of a survey was outlined, and the analysis of data is described. In conclusion, a detailed description for the limitations of this study was included.

CHAPTER FOUR: RESULTS

This chapter provides an analysis of my research study on teachers' perceptions of mastery learning. Specifically, this study sought to collect information about teachers' utilization of mastery learning, teachers' perceptions of the effectiveness of mastery learning strategies, and also to analyze the relationships that may exist between teachers' demographics and their perceptions of mastery learning's influence on students' academic motivation and achievement. The beginning of this chapter contains a review of the study's purpose and research questions. This study utilized a survey containing thirty-six questions which were designed to collect demographic and perception data from teachers who self-identify as using mastery learning in their classrooms, and the results of this survey are presented within this chapter.

Purpose Statement

The purpose of this study was to explore teachers' perceptions of mastery learning. My study first sought to determine if there was a significant difference between teachers' reports of students' academic motivation levels based on whether the students received instruction using mastery learning strategies. My study also aimed to determine teachers' perceptions of the effectiveness of mastery learning in regard to students' academic achievement. Several independent variables were collected in this study including the degree to which mastery learning was implemented, teachers' genders, years of experience, levels of training, content areas, and grade levels. The dependent variables were the perceptions of teachers about mastery learning, which were collected from a survey using a five-point Likert-type scale (1 = greatly decreased to 5 = greatly increased). In addition, teachers were asked to provide narrative comments in response to the statement, "Please describe the type of students for which you feel mastery learning is most beneficial."

Research Questions

The research questions that guided this study are as follows:

1. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' academic-motivation levels?
2. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' overall academic achievement?
3. Are there differences in teachers' perceptions of the effectiveness of mastery learning based on demographic variables and levels of training?

Participant Demographics

The Qualtrics survey that I developed and utilized for this study was distributed electronically to approximately 950 certified teachers in two different Indiana school districts. For the purposes of this study, responses were requested from teachers who self-identified as utilizing mastery learning in their classrooms and who had a minimum of two years of teaching experience. While 207 teachers partially completed the survey, 150 completed surveys were ultimately submitted and considered "usable" for analysis, giving an overall response rate of 15.8%. Between the two districts surveyed, exactly 50% of the respondents were from District A (n = 75) and 50% were from District B (n = 75).

The initial questions in the survey were used to collect some basic demographical data. The majority of respondents for this survey identified as female (n = 104, 69.33%) while 29.33% identified as male (n = 44), and the remaining 1.33% chose *prefer not to respond* (n = 2). It should also be noted that a greater number of participants taught at the secondary level (n = 112, 74.7%) than at the elementary level (n = 38, 25.3%). In terms of years in the profession, the participants were represented by a wide variety of experience with 20 (13.4%) teachers

indicating that they had been teaching two to five years, 29 (19.3%) teachers indicating they had six to ten years of experience, 27 (18.0%) teachers indicating they had 11 to 15 years of experience, and the largest subgroup was represented by 77 (49.3%) teachers with 16 or more years of teaching experience.

Table 4.1 provides a breakdown of gender and years of experience for each school district.

Table 4.1

Participant Demographics

	District A (*n* = 75)		District B (*n* = 75)		Total	
	n	%	*n*	%	*n*	%
Gender						
Male	26	17.3	18	12.0	44	29.3
Female	49	32.7	55	36.7	104	69.4
Prefer Not to Respond	0	0.0	2	1.3	2	1.3
Years of Experience						
2-5	13	8.7	7	4.7	20	13.4
6-10	18	12.0	11	7.3	29	19.3
11-15	14	9.3	13	8.7	27	18.0
16+	30	20.0	44	29.3	74	49.3

Based on the survey results, the teachers in District A and District B have implemented mastery learning in a variety of subject areas. Participants' responses indicated that math is the content area where mastery learning is most utilized with 65 teachers (32.18%) reporting such. Language arts was the second-most-implemented content area with 45 teachers (22.28%) designating this as a subject area where mastery learning methodologies were applied. The two

remaining core content areas, science and social studies, followed with 36 teachers (17.82%) utilizing mastery learning in science and 23 (11.39%) in social studies. The remaining 16.36% of responses (n = 33) were distributed amongst subject areas such as art, technology, and foreign language. It should also be noted that participants were able to select more than one content area, and this would be especially applicable at the primary and elementary levels as teachers are responsible for a variety of subjects. Therefore, the total number of responses for these subject area survey items was greater than the number of participants.

Respondents were also asked to report the approximate percent of time that mastery learning strategies were implemented in the identified subject areas. For the perceived amount of time that mastery learning has been implemented, the mean was 63.57% with the minimum amount reported being 2% and the maximum amount of time reported being 100% (n = 149, SD = 28.43). When these same teachers were asked what percentage of time they felt mastery learning was effective, the mean was 61.48% with the minimum amount reported as 1% and the maximum amount at the other extreme of 100% (n = 149, SD = 28.50). Although it was noted that the standard deviations were somewhat high, these results appeared to indicate a positive perception from teachers regarding the effectiveness of mastery learning a majority of the time.

Table 4.2 presents the results for the survey items related to the participants' implementation of mastery learning.

Table 4.2

Participant Use of Mastery Learning

	District A Teachers (*n* = 75)		District B Teachers (*n* = 74)		Total	
	n	%	*n*	%	*n*	%
Percent of Time that Mastery Learning is Implemented						
1 to 25 Percent	13	8.7	8	5.4	21	14.1
26 to 50 Percent	16	10.7	19	12.8	35	23.5
51 to 75 Percent	16	10.7	14	9.4	30	20.1
76 to 100 Percent	30	20.1	33	22.1	63	42.2
Percent of Time that Mastery Learning is Effective						
1 to 25 Percent	8	5.4	16	10.7	24	16.1
26 to 50 Percent	20	13.4	16	10.7	36	24.1
51 to 75 Percent	16	10.7	19	12.8	35	23.5
76 to 100 Percent	31	20.8	23	15.4	54	36.2

Perhaps one of the most relevant pieces of demographic data collected was related to levels of training on mastery learning. Fifty-nine teachers (39.33%) indicated that they had completed a mastery learning course with Dr. Thomas Guskey, and only 10 teachers (6.67%) marked that they began the course with Dr. Guskey but did not finish it. The number of teachers who were trained by a peer that completed the course with Dr. Guskey was almost as large as those trained directly by the expert with 55 teachers (36.67%) selecting this level of training. Somewhat surprising was that 26 participants (17.33%) selected that they had begun implementing mastery learning in their classrooms based on their own research and understandings. These data were thought-provoking because they seemed to suggest an interest

in mastery learning amongst teachers who never received any formal or peer training on the topic.

Participants were also asked a series of questions in order to gauge how well they understand the methodologies behind mastery learning and how implementation occurred in their classrooms. On a scale of one to 100 with one being *poor* and 100 being *outstanding*, teachers were asked to rate their own understanding of mastery learning. The mean score for this question was 76.87 (n = 149, SD = 20.76), which indicated that the majority of teachers perceived themselves as having a firm understanding of the concepts associated with mastery learning. Teachers were also asked to rate their ability to teach another educator how to implement mastery learning. This question also utilized a one to 100 scale with one equaling a poor ability to teach others and 100 equating to an outstanding ability. The mean for this survey question was 64.30 (n = 149, SD = 27.09), which was lower than the previous question related to level of understanding; however, it still indicated that the majority of teachers surveyed perceived themselves as being able to teach others how to utilize mastery learning with a fair amount of confidence.

Table 4.3 includes the breakdown of results for the survey questions related to the teachers' various levels of understanding of mastery learning.

Table 4.3

Participant Understanding of Mastery Learning

	District A Teachers (*n* = 75)		District B Teachers (*n* = 74)		Total	
	n	%	*n*	%	*n*	%
Level of Training on Mastery Learning						
I completed the entire course with Dr. Guskey.	25	16.8	33	22.1	58	38.9
I began the course with Dr. Guskey, but I did not complete it.	8	5.4	2	1.3	10	6.7
I was trained by a peer that completed the course with Dr. Guskey.	26	17.4	29	19.5	55	36.9
I began implementing mastery learning in my classroom based on my own research and understandings.	16	10.7	10	6.7	26	17.4
Self-Rating of Level of Understanding of Mastery Learning (1 = poor, 100 = outstanding)						
1 to 25	3	2.0	1	0.7	4	2.7
26 to 50	11	7.4	7	4.7	18	12.1
51 to 75	22	14.8	17	11.4	39	26.2
76 to 100	39	26.2	49	32.9	88	59.1
Self-Rating of Ability to Teach Another Educator How to Implement Mastery Learning (1 = poor, 100 = outstanding)						
1 to 25	10	6.7	7	4.7	17	11.4
26 to 50	17	11.4	16	10.7	33	22.1
51 to 75	19	12.6	17	11.4	36	24.0
76 to 100	29	19.5	34	22.8	63	42.3

Teachers were also asked to give an approximation of the percentage of time they reteach concepts and/or provide additional learning opportunities to students based on assessment results. The mean score for this question was 75.07% (n = 149, SD = 23.87), which indicated that the teachers surveyed were utilizing assessment results to guide instructional strategies in the classroom; one of the key principles of mastery learning. Similarly, survey participants were asked for the percentage of time that students were allowed to make corrections on formative assessments, and the mean score was 76.64% (n = 148, SD = 30.99), which again indicated that the teachers who responded to the survey were implementing strategies directly related to the mastery learning methodology. These data are presented in Table 4.4.

Table 4.4

Participant Application of Mastery Learning Methodologies

	District A Teachers (*n* = 75)		District B Teachers (*n* = 74)		Total	
	n	%	*n*	%	*n*	%
Self-Rating of the Percent of Time that Participants Reteach Concepts and/or Provide Additional Learning Opportunities to Students Based on Assessment Results						
1 to 25 Percent	5	3.3	4	2.7	9	6.0
26 to 50 Percent	10	6.7	12	8.1	22	14.8
51 to 75 Percent	18	12.1	11	7.4	29	19.5
76 to 100 Percent	42	28.2	47	31.5	89	59.7
Self-Rating of the Percent of Time that Participants Allow Students to Make Corrections on Formative Assessments						
1 to 25 Percent	8	5.4	8	5.4	16	10.8
26 to 50 Percent	12	8.1	8	5.4	20	13.5
51 to 75 Percent	7	4.7	4	2.7	11	7.4
76 to 100 Percent	48	32.4	53	35.8	101	68.2

Data Analyses in Relationship to the Research Questions

This study gathered data regarding the demographics and perceptions of teachers in two suburban school districts in regard to their utilization of mastery learning. A survey-based methodology was employed, and the invitation to participate including the link to the survey instrument and informed consent were distributed by email. Responses were collected through

the use of Qualtrics software, and descriptive statistics and inferential data techniques were managed and analyzed using SPSS Version 27.

In addition to the quantitative responses, narrative responses were also collected from participants on the open-ended question, "Please describe the type of students for which you feel mastery learning is most beneficial." From 150 survey participants, 111 educators responded to this survey item, and these data were analyzed using evaluation coding techniques (Miles et al., 2020). The first round of coding assigned a label to the response presented when it addressed an area of academic motivation or academic achievement. The second round of coding then assigned a label to each response based on the type of student described: high achievers, midlevel achievers, or low achievers. Finally, a + or – was attached to each coded label based on whether the information indicated mastery learning as having a positive or negative influence in the particular area discussed.

For example, one teacher responded, "The middle of the road students. They aren't allowed 'to settle' for their okay grade but are pushed to improve. They are capable of doing better but have been satisfied with 'okay' in the past. It encourages them to put in the extra effort." This statement describes the influence that mastery learning has had on academic motivation as is reflected in the statement, "It encourages them to put in the extra effort." The teacher also addresses mastery learning's benefits for "middle of the road" or midlevel achievers. Finally, because the statement describes the positive benefits that the teacher has perceived, it is assigned a +.

One example of a negative comment provided on the survey was, "I don't find it beneficial. Students are not motivated because they have endless opportunities. If anything, I find students less engaged and more unorganized. There seems to be very little student accountability

in this model." This statement was coded as *academic motivation* because the comments clearly state that the educator has perceived students as not being motivated due to the "endless opportunities." While the response does not specifically address a specific type of learner, it is assigned a – due to the statement, "I don't find it beneficial."

Table 4.5 presents the labels used and a tally of the labels for survey item 13.

Table 4.5

Coding Results for Survey Item 13

	Positive Influence (+)		Negative Influence (-)	
	n	%	*n*	%
Coding Labels				
Academic Motivation (AM)	37	15.6	26	11.0
Academic Achievement (AA)	54	22.8	9	36.7
High Achiever (HA)	20	8.4	6	3.8
Midlevel Achiever (MA)	17	7.2	1	0.0
Low Achiever (LA)	47	19.8	12	8.7
Non-Specific Response	7	3.0	1	0.0

The labels chosen for the coding process were based on several reoccurring themes and subthemes related to this study. When asked to describe what type of student most benefited from mastery learning, the majority of teachers responded with explanations related to the role motivation played in the successful implementation of mastery learning or how aspects of academic motivation were influenced; hence *academic motivation* was a reoccurring theme. Furthermore, nearly every respondent commented on how mastery learning has influenced the academic achievement of students, and consequently, *academic achievement* was the second major theme that emerged. Beyond these major themes and in addressing the survey item

directly, educators described the types of students that did and did not benefit from mastery learning. Three subthemes naturally emerged from their written commentaries, *low achievers, midlevel achievers,* and *high achievers.* These subthemes resulted from teachers' frequent descriptions of students that have historically struggled in school, students that understood concepts quickly and needed to be pushed further, and students that consistently performed somewhere in the middle of these other two groups.

Research Question 1

For the first research question, "What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' academic-motivation levels?" data were gathered using fifteen Likert-type questions in part two of the survey instrument. Each of these questions were specifically written to address various elements of motivation-related student behavior on which previous research has shown mastery learning to have an influence. As applicable, these questions also related directly to the theoretical framework, goal orientation theory, which guided this study. Further details regarding the research that is referenced and goal orientation theory can be found in chapter two of this study, and the survey instrument can be found in Appendix B, which shows the alignment of the survey questions with the theoretical framework.

In surveying teachers' perceptions of student behavior, the Likert-type questions in part two of this study utilized the following scale: 0 = Not Applicable, 1 = greatly decreased, 2 = slightly decreased, 3 = remained the same, 4 = slightly increased, 5 = greatly increased. "Not Applicable" responses were not included in the computation of results for the survey items. A higher mean score on a survey item indicated an increase in the described behavior while a lower

mean score indicated a decrease. Mean scores that are close to 3.00 suggested that the described behavior changed very little after implementing mastery learning in the classroom.

Table 4.6 provides a breakdown of the quantitative survey items related to academic motivation.

Table 4.6

Items Assessing Teachers' Perceptions of Students' Academic Motivation

Item Number	After implementing master learning in my classroom… (*n* = 141)	Mean	*SD*
14	…students' anxiety about their grades…	2.28	0.78
15	…students' concerns for the letter grades they received have…	2.82	0.72
16	…students' positive attitudes towards the subject area I teach have…	3.37	0.73
17	…students' concerns for outperforming their peers has…	2.82	0.61
18	…disruptive behavior in the classroom has…	2.84	0.59
19	…students' focus on comparing themselves to their peers has…	2.78	0.68
20	…positive changes in the student/teacher relationship have…	3.62	0.86
21	…students' levels of responsibility for their own learning have…	3.29	1.03
22	…students' abilities to cope with academic-related adversity have…	3.29	0.82
23	…students' positive relationships with their peers have…	3.15	0.38
24	…students' motivation to outperform their peers on formative assessments has…	2.87	0.63
25	…the likeliness of students to cheat on assignments has…	2.76	0.85
27	…the likeliness that students will be embarrassed by the need to complete remediation exercises has…	2.51	0.97
28	…the likeliness that students will procrastinate on completing assignments has…	3.43	1.01
29	…I feel that students' academic motivation levels have…	3.08	0.94

Data were also gathered from the responses to the open-ended question for survey item number 13 which specifically referenced academic motivation and/or elements of academic motivation in relationship to research question 1.

Results for Research Question 1

In Table 4.6, a visual inspection of these data showed that the majority of teachers perceived the positive student behaviors aligned with academic motivation had increased and nearly all of the negative behaviors had decreased after implementing mastery learning. The lowest mean score was for survey item number 14 which asked teachers to rate perceived changes in students' anxiety levels (M = 2.28, SD = 0.78), and this suggested that, overall, teachers had observed a decrease in students' anxiety about their grades since implementing mastery learning. The highest mean score for the academic motivation section of the survey was for survey item number 20 (M = 3.62, SD = 0.86), which suggested that many teachers perceived positive changes in the student/teacher relationship had increased since implementing mastery learning.

Influence on Negative Behavior

The following presents details for each survey item related to academic motivation and representing behaviors that would be considered, per the research, detrimental to the classroom environment and the well-being of students.

Item 14: For the first item in part two of the survey, teachers were asked to rate any perceived changes in students' anxiety about their grades since implementing mastery learning in their classrooms. This item had the lowest mean score (M = 2.28, SD = 0.78) as the majority of teachers who responded to this item indicated that they perceived a slight decrease in students' anxiety about their grades (41.13%, n = 58), and an additional 17.02% (n = 24) of participants

indicated that they perceived a great decrease in this same area. A large portion of teachers perceived no change in students' anxiety in this area (38.30%, *n* = 54), and only 3.55% (*n* = 5) perceived a slight increase in anxiety. None of the respondents indicated a great increase.

Item 15: Similar to the first item in part two, teachers were also asked to rate perceived changes in students' concerns for the letter grades they received after mastery learning was implemented in their classrooms (*M* = 2.82, *SD* = 0.72). The vast majority of participants perceived no change in this area (65.54%, *n* = 91) while 18.44% (*n* = 26) of surveyed teachers indicated a slight decrease and 5.67% (*n* = 8) did mark that they perceived students' concerns for their letter grades had greatly decreased. In contrast to the other study participants, a few teachers (10.64%, *n* = 15) perceived a slight increase in students' levels of concern, and one participant (0.71%) even indicated that students' concerns for the letter grades they received had greatly increased.

Item 17: When asked about changes in students' concerns for outperforming their peers after implementing mastery learning (*M* = 2.82, *SD* = 0.61), the majority of teachers perceived no change in behavior (72.14%, *n* = 101); however, 16.43% (*n* = 23) did perceive a slight decrease in students concerns for outperforming their peers and 4.29% (*n* = 6) perceived a great decrease. No teachers found that students' concerns in this area had greatly increased, and 7.14% (*n* = 10) perceived a slight increase.

Item 18: Survey item number 18 asked teachers to rate perceived changes in disruptive behavior in the classroom (*M* = 2.84, *SD* = 0.59). Like survey items 15 and 17, most teachers perceived no change in this area (73.57%, *n* = 103); however, 17.14% (*n* = 24) did perceive a slight decrease while 2.86% (*n* = 4) felt like disruptive behavior had greatly decreased. Interestingly, 5.71% (*n* = 8) of teachers perceived a slight increase in disruptive behavior, and one teacher (0.71%) felt like disruptive behavior had greatly increased.

Item 19: The next survey item asked teachers who have implemented mastery learning to rate the changes they have perceived in students' focus on comparing themselves to their peers (*M* = 2.78, *SD* = 0.68). Again, many teachers felt like students' focus in this area remained the same 66.91% (*n* = 93). Several teachers did notice a decrease in this performance-oriented behavior as 18.71% (*n* = 26) perceived a slight decrease, and 5.76% (*n* = 8) perceived a great decrease in students' focus in this area. None of the teachers selected that this behavior had greatly increased; however, 8.63% (*n* = 12) felt like student's focus on comparing themselves to their peers had slightly increased.

Item 24: When asked about changes in students' motivation levels to outperform their peers on formative assessments (*M* = 2.87, *SD* = 0.63), the majority of surveyed teachers felt that this student behavior remained unchanged (71.43%, *n* = 100). A portion of surveyed teachers did perceive a decrease in this performance-goal-oriented behavior as 14.29% (*n* = 20) felt that it had slightly decreased and 4.29% (*n* = 6) felt that it had greatly decreased. No teachers perceived a great increase in this behavior; however, 10.00% (*n* = 14) perceived student's motivation levels to outperform their peers on formative assessments to have slightly increased after implementing mastery learning methodologies in their classrooms.

Item 25: Teacher responses were varied when asked to rate perceived changes in the likeliness of students to cheat on assignments after implementing mastery learning in their classrooms (*M* = 2.76, *SD* = 0.85). Approximately one-third of respondents perceived a decrease in this negative behavior with 27.34% (*n* = 38) selecting "slightly decreased" and 6.47% (*n* = 9) selecting "greatly decreased." Nearly half of the surveyed teachers perceived no change in this behavior as 53.96% (*n* = 75) selected "remained the same," and the remaining survey participants perceived

an increase in the likeliness of students to cheat as 7.91% (*n* = 11) felt that this behavior had slightly increased and 4.32% (*n* = 6) felt that it had greatly increased.

Item 27: For survey item number 27, teachers were asked about the changes they have perceived in the likeliness that students will be embarrassed by the need to complete remediation exercises (*M* = 2.51, *SD* = 0.97). While the mean for this item may first appear to indicate little change in the described behavior, it should be noted that 30.94% (*n* = 43) of teachers perceived this behavior to slightly decrease and 16.55% (*n* = 23) felt that it had greatly decreased. A few teachers did perceive the likeliness of students to be embarrassed by the need to complete remediation exercises to slightly increase (9.35%, *n* = 13) or greatly increase (2.88%, *n* = 4), and 40.29% (*n* = 56) felt that this behavior remained unchanged.

Item 28: As the implementation of mastery learning typically allows students multiple chances and extended time schedules to display their understanding of a given concept, teachers were asked how they have perceived changes in the likeliness that students will procrastinate on completing assignments (*M* = 3.43, *SD* = 1.01). As the only negative behavior with a mean score indicating an increase in frequency, over one-third of survey participants felt that the likeliness of students to procrastinate had increased as 17.14% (*n* = 24*)* perceived a slight increase in this behavior and 20.71% (*n* = 29) perceived a great increase. Some teachers did feel as though this behavior decreased with 11.43% (*n* = 16) indicating that it had slightly decreased and only 2.14% (*n* = 3) perceiving it to have greatly decreased. Many teachers did not perceive a change in this area as 48.57% (*n* = 68) selected "remained the same" on the survey.

Influence on Positive Behavior

The following presents details for each survey item related to academic motivation and representing behaviors that would be considered positive attributes in the classroom environment and to the well-being of students.

Item 16: Item 16 in the survey instrument asked teachers to rate perceived changes in students' positive attitudes towards the subject areas they taught after implementing mastery learning in their classrooms (M = .37, SD = 0.73). In terms of mastery learning's effect on students' academic motivation levels, the survey results for this item were favorable as 29.08% (n = 41) of teachers perceived that students' positive attitudes had slightly increased, and 7.09% (n = 10) indicated a great increase. While 58.87% (n = 83) perceived no change in the described behavior, only seven teachers perceived a decrease with 3.55% (n = 5) selecting that students' positive attitudes had slightly decreased and 1.42% (n = 2) selecting that they had greatly decreased.

Item 20: With the highest mean in part two, survey item number 20 asked teachers to gauge positive changes in the student/teacher relationship after implementing mastery learning (M = 3.62, SD = 0.86). The results from this item speak very highly toward mastery learning's influence on the classroom environment as more than half of the survey participants perceived an increase in this area with 41.84% (n = 59) of teachers perceiving a slight increase and 14.18% (n = 20) perceiving a great increase. Several teachers felt that the student/teacher relationship remained the same (37.59%, n = 53), and only a few teachers felt that positive changes in the student/teacher relationship decreased as 4.26% (n = 6) selected "slightly decreased" and 2.13% (n = 3) selected "greatly decreased."

Item 21: Also reflecting favorably on mastery learning's implementation, many teachers perceived an increase in students' levels of responsibility for their own learning (M = 3.29, SD =

1.03) as 37.86% (*n* = 53) perceived a slight increase in this behavior and 8.57% (*n* = 12) perceived a great increase. In contrast to these responses, 10.71% (*n* = 15) of participants felt that students' levels of responsibility for their learning had slightly decreased, and 7.86% (*n* = 11) perceived these levels to greatly decrease. Forty-nine teachers (35.00%) selected that they perceived students' levels of responsibility in this area to remain the same.

Item 22: Teachers were asked to rate how they have perceived their students' abilities to cope with academic-related adversity to change after implementing mastery learning (*M* = 3.29, *SD* = 0.82), and again, many teachers perceived an increase in this area as 36.43% (*n* = 51) felt that their students had slightly increased in this ability and 4.29% (*n* = 6) perceived the ability to have greatly increased. Many teachers perceived no change as 46.43% (*n* = 65) selected "remained the same" while a few teachers felt like students' abilities to cope with academic-related adversity had decreased with 10.00% (*n* = 14) selecting "slightly decreased" and 2.86% (*n* = 4) selecting "greatly decreased."

Item 23: Survey item number 23 asked teachers to what degree students' positive relationships with their peers had changed after implementing mastery learning (*M* = 3.15, *SD* = 0.38), and this was the only survey item with no teachers indicating a decrease in behavior. The majority of teachers felt that students' positive relationships with their peers had remained unchanged (85.71%, *n* = 120); however, 13.57% (*n* = 19) of survey participants perceived a slight increase in these relationships and one (0.71%) respondent felt that these positive relationships had greatly increased.

Item 29: The final item in part two of the survey specifically asked teachers to rate how they have perceived students' academic motivation levels to change (*M* = 3.08, *SD* = 0.94). Teachers' responses to this question were fairly evenly dispersed. Nearly one-third of teachers did note an

increase in students' academic motivation levels with 27.86% (*n* = 39) perceiving a slight increase and 5.00% (*n* = 7) perceiving a great increase. In contrast, 18.57% (*n* = 26) felt that academic motivation slightly decreased with students, and 5.71% (*n* = 8) perceived these levels to greatly decrease. The remaining 42.86% (*n* = 60) of teachers did not perceive an overall change in this area.

Open-Ended Responses

Item 13: Survey item 13 asked teachers to respond to the open-ended question, "Please describe the type of students for which you feel mastery learning is most beneficial." Through the coding and analysis of teachers' responses, it was determined that 52 of the 111 responses were related to the theme, academic motivation.

From these 52 responses related to students' academic motivation, 26 comments indicated that the implementation of mastery learning was considered by teachers to be negatively impacting certain motivation-related elements. These areas included task procrastination and not trying their best on initial assessments, and in contrast to the responses received for survey item 14, one teacher even felt that the frequent use of formative assessments increased test anxiety in students. Comments from teachers included, "The issue I have is students doing work carelessly the first time knowing they can redo it with help the second time and get a better grade," and "If we could assume that all students want to achieve their best on their first attempt and will use the second attempt as a way to improve their learning, then it would be a great idea, but students do not think with this grand assumption." Mastery learning's perceived negative influence on task procrastination amongst students was reflected in the comment, "…mastery learning gives students an excuse to procrastinate and not try as hard." One other educator even pointed out that the corrective/enrichment process had become

competitive amongst some students, and given this response, would suggest that students were adopting a performance goal orientation in this environment.

From the 52 responses categorized under the theme, *academic motivation*, 37 communicated that the implementation of mastery learning had a positive influence on students, and many of these responses contributed to the subthemes, *low achievers*, *midlevel achievers*, and *higher achievers.* These responses included descriptions of how students' levels of effort had increased given multiple opportunities to be successful and how they have perceived increased levels of confidence in the students. One teacher wrote, "Middle of the road students aren't allowed 'to settle' for their okay grade but are pushed to improve…It encourages them to put in the extra effort." Another educator commented, "…lower-achieving students seem to appreciate the additional opportunities to demonstrate understanding," and similarly, yet another teacher stated that mastery learning has been beneficial to average to "average/low level" students in that it allows them, "…more than one chance to get it figured out and build some confidence to work at a higher level." Several respondents also commented that mastery learning's implementation had a positive influence on students' anxiety levels as reflected in one teacher's statement, "…I see it lessening their anxiety surrounding assessments and encouraging them to understand content instead of to just 'pick the right answer.'"

Summary of Results for Research Question 1

Overall, the survey responses from educators who have implemented mastery learning in their classrooms indicated that mastery learning had a positive influence on academic motivation as evidenced by the mean scores and the coding results for survey item 13. This appears to be especially true in relationship to the classroom environment as teachers' responses reflected very favorably on mastery learning's influence on students' positive attitudes towards the subject

areas being taught and the student/teacher relationship. A large number of teachers also felt that students' abilities to cope with academic diversity had improved, and many teachers perceived a decrease in the likeliness that students will be embarrassed by the need to complete remediation exercises.

In contrast to the perceived positive outcomes of mastery learning's implementation, many teacher responses indicated that the likeliness of students to procrastinate on assignments had increased and some students may not give their best efforts on initial assessment attempts when they know they will get another chance. There were also elements in the classroom that appeared to remain unchanged by mastery learning's influence such as students' positive relationships with their peers and students' motivation levels to outperform their peers on formative assessments.

Research Question 2

The second research question was "What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' overall academic achievement?" To address this research question, data were gathered using eight Likert-type questions in part three of the survey instrument. Based on previous research on mastery learning, questions in part three were purposely written to focus on specific components of academic-related student behavior, and as applicable, to relate to this study's theoretical framework.

In surveying teachers' perceptions of student academic achievement since implementing mastery learning, the Likert-type questions in part three of this study utilized the same Likert-type scale as for academic motivation, which was a scale of: 0 = Not Applicable, 1 = greatly decreased, 2 = slightly decreased, 3 = remained the same, 4 = slightly increased, 5 = greatly increased. "Not Applicable" responses were not included in the computation of results for the

survey items. A higher mean score on a survey item indicated an increase in the described behavior, while a lower mean score indicated a decrease. As with the academic motivation scores, mean scores that were close to 3.00 suggested that teachers' perceptions of academic achievement changed very little after implementing mastery learning in the classroom.

Table 4.7

Items Assessing Teachers' Perceptions of Students' Academic Achievement

Item Number	After implementing master learning in my classroom… (n = 135)	Mean	*SD*
32	…the number of students who view me as a resource to their learning has…	3.55	0.66
33	…student growth in the area of problem-solving has…	3.30	0.85
34	…student engagement in collaborative learning experiences has…	3.46	0.68
35	…the effective use of instructional time has…	3.27	1.04
36	…the number of students capable of learning the content and concepts being taught in my classroom at a mastery level has…	3.70	0.75
37	…the overall academic performance of my students has…	3.63	0.71
38	…the academic achievement of lower-achieving students has…	3.73	0.75
39	…the academic achievement of higher-achieving students has…	3.47	0.78

Data were also gathered from the responses to the open-ended question for survey item number 13 which specifically referenced academic achievement and/or elements of academic achievement in relationship to research question 2.

Results of Research Question 2

The data presented in Table 4.7 indicated mean scores well above 3.0 for every question related to teachers' perceptions of students' academic achievement after implementing mastery learning in their classes. These results strongly suggest that the teachers perceived the

implementation of mastery learning to have a positive influence on students' academic achievement.

The following presents details for each survey item related to academic achievement.

Item 32: For the first item in part three of the survey, each teacher was asked to gauge how the number of students who viewed them as a resource to their learning had changed after implementing mastery learning (M = 3.55, SD = 0.66). The results from this survey item reflected favorably on mastery learnings' implementation as 44.44% (n = 60) perceived a slight increase in the number of students and 6.67% (n = 9) felt that there was a great increase. None of the teachers reported a great decrease in this area, and only 2.96% (n = 4) noted a slight decrease. The remaining 45.93% (n = 62) did not feel that the number of students who viewed them as a resource to their learning had changed.

Item 33: This item number asked teachers to reflect on student growth in the area of problem-solving (M = 3.30, SD = 0.85). Again, the results supported the notion that master learning may be a positive influence in the classroom as 32.59% (n = 44) of teachers perceived a slight increase in this skill and 6.67% (n = 9) felt that student growth had greatly increased in this area. A large number of teachers did not perceive a change with 48.89% (n = 66) selecting "remained the same," and a small group of respondents reported a decrease in this area with 8.15% (n = 11) selecting "slightly decreased" and 3.70% (n = 5) selecting "greatly decreased" on the survey.

Item 34: When asked about changes in student engagement in collaborative learning experiences, the survey results indicated that the implementation of mastery learning may have a positive influence on this behavior (M = 3.46, SD = 0.68). Many teachers perceived an increase in collaborative student engagement with 32.09% (n = 43) of survey respondents indicating a slight increase and 8.21% (n = 11) perceiving a great increase. A large number of survey

participants felt that this behavior remained the same with 57.46% (*n* = 77) indicating such, and no one perceived a great decrease in this area while only 2.24% (*n* = 3) perceived a slight decrease in collaborative engagement.

Item 35: Teacher responses were varied when asked to rate changes in the effective use of instructional time after implementing mastery learning (*M* = 3.27, *SD* = 1.04). Many teachers perceived an increase in the effective use of time with 31.11% (*n* = 42) selecting "slightly increased" and 11.11% (*n* = 15) selecting "greatly increased" on the survey; however, a number of teachers also perceived a decrease in this area as 13.33% (*n* = 18) felt that there was a slight decrease and 6.67% (*n* = 9) noted a great decrease. The remaining 37.78% (*n* = 51) of survey respondents perceived no change in the effective use of instructional time.

Item 36: As the name implies, the goal of mastery learning is to help students reach a mastery level in understanding the content and concepts being taught in the classroom, and the majority of survey participants perceived an increase in the number of students capable of learning the content and concepts being taught at a mastery level after implementing mastery learning in their classrooms (*M* = 3.70, *SD* = 0.75). Nearly half (49.63%, *n* = 67) of the surveyed educators perceived a slight increase in this area, and 12.59% (*n* = 17) perceived a great increase in the number of students. Only five (3.70%) teachers felt that the number of students capable of reaching a mastery level declined with 2.96% (*n* = 4) noting a slight decrease and 0.74% (*n* = 1) perceiving a great decrease. Of the teachers surveyed, 34.07% felt that the number of students in this area remained the same.

Item 37: Item number 37 asked teachers to rate changes in their students' overall academic performance since implementing mastery learning in their classrooms (*M* = 3.63, *SD* = 0.71). The majority of teachers perceived an increase in overall academic performance as 51.85% (*n* =

70) felt that there was a slight increase and 8.15% (*n* = 11) reported a great increase. None of the respondents perceived a great decrease in overall academic performance; although, 5.19% (*n* = 7) reported a slight decrease in this area. Several teachers did not feel that there was a change in students' overall academic performance after implementing mastery learning as 34.81% (*n* = 47) selected "remained the same" on the survey.

Item 38: The survey item with the highest mean in part three specifically asked teachers to report the changes they have perceived in the academic achievement of lower-achieving students since implementing mastery learning in their classrooms (*M* = 3.73, *SD* = 0.75). Again, the majority of teachers perceived an increase in this area with 48.89% (*n* = 66) selecting "slightly increased" on the survey and 14.07% (*n* = 19) selecting "greatly increased." Only 4.44% (*n* = 6) felt that there was a slight decrease in the academic achievement of lower-achieving students, and no one reported a great decrease. The remaining 32.59% (*n* = 44) of teachers perceived the academic achievement for this group of students to remain the same.

Item 39: Similar to the previous survey item, the last item in part three asked teachers to report the changes they have perceived in the academic achievement of higher-achieving students since implementing mastery learning in their classrooms (*M* = 3.47, *SD* = 0.78). Many teachers again reported an increase in academic achievement with 36.30% (*n* = 49) perceiving a slight increase and 8.89% (*n* = 12) perceiving a great increase. Nearly half of the survey participants felt that academic achievement remained unchanged for high-achievers (48.89%, *n* = 66), and a small group of teachers perceived academic achievement to decline for this group of students with 4.44% (*n* = 6) selecting "slightly decreased" on the survey and 1.48% (*n* = 2) selecting "greatly decreased."

Open-Ended Responses

Item 13: For this open-ended survey item, 61 of the 111 responses made references to behaviors and outcomes related to the theme, *academic achievement*, and when asked to describe the type of students for which mastery learning is most beneficial, the responses provided by educators could mostly be divided into the subthemes: *low achievers*, *midlevel achievers*, and *high achievers*.

The vast majority of these responses indicated that mastery learning has had a positive influence on the academic achievement of students as 54 of the 61 responses communicated such. Some simply stated, "Master learning is beneficial for all students," but respondents also described the ways in which specific mastery-learning-related strategies had benefited the academic growth of students. One educator explained how college bound advanced placement students have benefited from, "…the opportunity to practice a particular skill over and over, until they understand the writing/answering the question concept." Yet another teacher commented on the benefits of mastery learning for struggling students in the statement, "It allows me to check in quickly and often and provide feedback and intervention immediately."

In contrast to the positive comments, only nine out of the 61 survey responses that addressed academic achievement for item 13 included negative responses regarding mastery learning's influence. These comments referenced the ineffective use of instructional time and the difficulty in challenging high-achievers while also attempting to provide remediation for others in the classroom. One respondent specifically wrote, "I have found it difficult and – at times – even damaging to assess writing through the mastery learning process, so I have found myself using immaterial assignments for mastery learning."

Summary of Results for Research Question 2

Through analyzing teachers' responses on the academic achievement portion of the survey, it appears that the majority of teachers' have perceived mastery learning to have a positive influence in the classroom as evidenced by the relatively high mean scores for all survey items in part three as well as the responses received on the open-ended response item. Areas of special note include the large number of teachers who have seen an increase in the number of students capable of learning the content and concepts being taught at a mastery level and the increase in academic achievement for historically lower-achieving learners.

To further support the results from research question number one, evidence also exists in part three of the survey to suggest that mastery learning has had a positive influence on the classroom environment as over half of the survey participants perceived an increase in the number of students who viewed the classroom teacher as a resource to their learning.

Research Question 3

The third and final research question asked, "Are there differences in teachers' perceptions of the effectiveness of mastery learning based on demographic variables and levels of training?" To gain a better understanding of how teachers' demographics and levels of training impact their perceptions, the information collected in part one of the survey was compared with the responses collected in parts two and three that were specifically related to academic motivation and academic achievement. In order to depict an accurate representation of teachers' perceptions of mastery learning's influence on negative and positive behaviors, the survey items representing negative behaviors have been reverse-coded. These survey items were numbers 14, 15, 17, 18, 19, 24, 25, 27, and 28.

Results for Research Question 3

In comparing the survey responses of male and female participants, 41 participants (29.29%) identified as male while 99 (70.71%) identified as female. These unequal sample sizes affected the robustness of the equal variance assumption, and Levene's test revealed unequal variances for the survey items measuring academic motivation (F = 4.899, p = .029). Having stated this, an ANOVA analysis revealed a significant difference ($F(1,138) = 5.044$, $p = .026$), with a Welch analysis confirming the significant difference ($p = .012$). The overall mean for females on the academic motivation survey items was significantly higher than for males, with the females' mean at 3.30 (SD = .512), and the male respondents' mean at 3.11 (SD = .372). For the survey items measuring teachers' perceptions of academic achievement, Levene's test confirmed equal variances in the two groups (F = 3.633, p = .059), but the one-way ANOVA results did not display a statistically significant difference between the two genders in terms of their responses to the survey items measuring academic achievement ($F(1,132) = 3.549$, p = .062). The overall mean for male respondents on the academic achievement items was 3.37 (SD = .470), while the females' overall mean was 3.57 (SD = .593).

Survey respondents were divided into four groups based on their years of teaching experience: one to five years; six to 10 years; 11 to 15 years; and 16 or more years. In comparing the responses of these groups, Levene's test again found unequal variances for the survey items measuring motivation (F = 3.029, p = .032) and achievement (F = 3.383, p = .020), and one-way ANOVA also confirmed that the results were not statistically significant for either motivation ($F(3,137) = 0.483$, p = .695) or achievement ($F(3,131)$ = .403, p = .751). While no statistically significant differences were found across the four groups for each section of the survey, it is worth noting that the lowest mean score for achievement came from the teachers in the most

experienced group (43.26%, *n* = 61) with a mean of 3.46 (*SD* = .523) while the highest mean for achievement of 3.59 (*SD* = .778) was reported by the group with six to 10 years of experience (20%, *n* = 27). Interestingly, the lowest mean score for motivation was reported by the teachers in the least experienced group (17.02%, *n* = 24) with a mean of 3.17 (*SD* = .331), and the highest mean for motivation came from the group with 11 to 15 years of experience (17.73%, *n* = 25) with a mean score of 3.33 (*SD* = .463).

Teachers who self-identified as teaching at least one grade level in only kindergarten through fifth grade were placed into a group labeled *elementary* (13.48%, *n* = 19), and similarly, teachers who submitted a survey response indicating that they taught at least one grade level in only grades six through twelve were placed into a group labeled *secondary* (68.79%, *n* = 97). Educators who indicated that they worked with multiple grade levels spanning kindergarten through grade twelve were placed into a group labeled *K-12* (17.73%, *n* = 25). The secondary group was the largest and a test for homogeneity of variances (Levene's) did not confirm the assumption of equal variance for motivation ($F = 3.129$, $p = .047$); however, Welch's test did confirm a significant difference in this area ($p = .013$). Levene's test did confirm equal variance for academics ($F = .320$, $p = .727$). One-way ANOVA results revealed a statistically significant difference between the survey responses of the groups for motivation ($F(2,138) = 7.285$, $p = .001$) and achievement ($F(2,132) = 9.775$, $p = .000$). For motivation, the Games-Howell test was used for post hoc analyses due to the unequal variance. The motivation post hoc revealed a statistically significant difference ($p = .018$) between the elementary group's mean of 3.60 (*SD* = .606) and the secondary group's mean of 3.16 (*SD* = .436). Neither the elementary group nor the secondary group were found to be significantly different from the K-12 group at the $p < .05$ level. For academics, the Tukey HSD was employed as a post hoc due to the assumption of equal

variance being confirmed. The elementary and secondary groups were again found to be significantly difference (p = .00). The elementary mean was significantly higher (M = 3.93, SD = .631) than the secondary group (M = 3.39, SD = .522). A significant difference was also found between the secondary group and the K-12 group (p = .039) with the elementary mean again being significantly higher (M = 3.93, SD = .631) than the K-12 group (M = 3.69, SD = .488).

Two school districts were equally represented in this study with 75 teachers from each district completing the survey. Based on Levene's tests, equal variance was assumed for both the motivation (F = .581, p = .447) and achievement (F = .561, p = .455) sections of the survey, and one-way ANOVA results revealed a statistically significant difference between the two school districts for the mean responses on academic achievement (F(1,133) = 13.639, p = .000). A Robust Tests of Equality of Means (Welch's test) confirmed the results of a significant difference (p = .000) in academic survey responses between the school districts, with mean responses from District A being significantly higher (M = 3.69, SD = .541) than those reported by teachers in District B (M = 3.35, SD = .539). There was no significant difference found between the teachers' mean responses for the two school districts on the motivation survey items (F(1,139) = 1.855, p = .175). The mean for District A on the motivation portion of the survey was 3.30 (SD = .455), and the mean for District B in this same area was 3.19 (SD = .502).

The four subject areas with the largest representation in this survey were language arts (16.31%, n = 23), math (28.37%, n = 40), social studies (22.70%, n = 32), and science (17.02%, n = 24). The remaining subject areas were placed into a group representing elective and related arts courses (15.6%, n = 22). For these groups, Levene's test confirmed equal variances for both the sections on motivation (F = .479, p = .751) and achievement (F = .268, p = .898). While one-way ANOVA identified the results on the motivation section as not being statistically significant

($F(4,136) = 2.211$, $p = .071$), the differences in responses between the groups were confirmed as statistically significant for the section related to academic achievement ($F(4,130) = 3.293$, $p = .013$). Post hoc analyses using the Tukey HSD were conducted and revealed that the group representing elective and related arts courses ($M = 3.81$, $SD = .521$) had a significantly higher overall mean than teachers who utilized mastery learning in science ($p = .015$, $M = 3.29$, $SD = .628$) or social studies ($p = .045$, $M = 3.38$, $SD = .473$). Although not statistically significant, it was interesting to note that next to the teachers who taught multiple subjects, the next highest mean score for achievement was reported by the math group ($M = 3.60$, $SD = .585$), which may be related to the fact that this was the subject area where mastery learning was reported as being utilized the most. Language arts had the second highest mean score ($M = 3.47$, $SD = .499$) for achievement followed by social studies ($M = 3.38$, $SD = .473$) and science ($M = 3.29$, $SD = .628$). While not statistically significant, the highest mean score for motivation was also reported by the elective and related arts group ($M = 3.45$, $SD = .501$); however, the individual subject area with the highest mean was again the math group ($M = 3.32$, $SD = .539$), followed by language arts ($M = 3.21$, $SD = .414$), science ($M = 3.14$, $SD = .443$), and social studies ($M = 3.11$, $SD = .423$).

The teachers participating in this study were asked about their own professional development on mastery learning. The survey participants either completed an entire course with an expert in the field, Dr. Guskey (40.43%, $n = 57$); began the course with Dr. Guskey and did not complete it (5.67%%, $n = 8$); were trained by a peer who completed the course with Dr. Guskey (36.17%, $n = 51$); or began implementing mastery learning in their classrooms based on their own research and understandings (14.18%, $n = 25$). Levene's test confirmed equal variances for the section on achievement ($F = .989$, $p = .400$), but it did not confirm equal

variances for motivation (F = 4.137, p = .008). Having stated this, Welch's test confirmed the survey results for these four groups contained significant differences for the section on motivation (p = .000), and one-way ANOVA revealed a statistically significant difference between the four groups for both motivation (F(3,137) = 7.924, p = .000) and achievement (F(3,131) = 5.083, p = .002). For motivation, the Games-Howell test was used for post hoc analyses due to the unequal variance. The motivation post hoc revealed a statistically significant difference (p = .000) between the group that was trained by Dr. Guskey (M = 3.45, SD = .536) and the group that was trained by a peer (M = 3.03, SD = .315). The Tukey HSD was employed as a post hoc for the section on achievement, and again, a statistically significant difference was confirmed (p = .001) between the group trained by Dr. Guskey (M = 3.68, SD = .595) and the peer-trained group (M = 3.28, SD = .469). From the four survey options on mastery-learning-related professional development, teachers who were trained by their peers had the lowest mean scores in both the section related to academic motivation (M = 3.03, SD = .315) and the section related to academic achievement (M = 3.28, SD = .469). The highest mean scores came from the educators who completed the entire course with Dr. Guskey in both areas, academic motivation (M = 3.45, SD = .536) and academic achievement (M = 3.68, SD = .595).

For survey item number 7, teachers were asked to report the percentage of time that they have implemented mastery learning strategies in their classrooms. Respondents were then divided into four groups based on the percentage of time they reported: one to 25% (12.77%, n = 18); 26 to 50% (24.11%, n = 34); 51 to 75% (19.86%, n = 28); or 76 to 100% (43.26%, n = 61). Levene's test confirmed equal variances for achievement (F = 2.087, p = .105), but not motivation (F = 6.264, p = .001); however, Welch's test confirmed the equality of means for these four groups on the motivation section (p = .000). One-way ANOVA displayed a significant

difference between the time-based groups for motivation ($F(3,137) = 4.604$, $p = .004$) and achievement ($F(3,131) = 4.548$, $p = .005$). The Games-Howell test was used for post analysis of motivation and the difference between the group who implemented mastery learning one to 25% of the time ($M = 3.01$, $SD = .182$) and the group who utilized mastery learning 76 to 100% of the time ($M = 3.40$, $SD = .526$) was found to be significant ($p = .000$). Games-Howell also revealed a statistically significant difference ($p = .010$) between the 26 to 50% ($M = 3.11$, $SD = .341$) group and the 76 to 100% group ($M = 3.40$, $SD = .526$). For achievement, Tukey HSD was utilized post hoc due to the equal variances, and again, the results of the one to 25% group ($p = .010$, $M = 3.20$, $SD = .376$) and the 26 to 50% group ($p = .041$, $M = 3.37$, $SD = .494$) were found to be significantly different from those teachers implementing mastery learning 76 to 100% of the time ($M = 3.68$, $SD = .627$). Perhaps not surprisingly, the mean scores in both sections of the survey gradually increased as the percent of time that mastery learning was implemented increased. The lowest scores were reported by the group implementing mastery learning one to 25% of the time as the mean for motivation was 3.01 ($SD = .182$) and the mean for achievement was 3.20 ($SD = .376$). The group utilizing mastery learning the most, 76 to 100% of the time, had the highest scores with a mean of 3.40 ($SD = .526$) for motivation and a mean of 3.68 ($SD = .627$) for achievement.

Like survey item number 7, item number 8 asked teachers to report the percentage of time that they felt mastery learning has been effective. Again, participants were divided into four groups based on the percentage of time they reported: one to 25% (15.60%, $n = 22$); 26 to 50% (24.82%, $n = 35$); 51 to 75% (24.11%, $n = 34$); or 76 to 100% (35.46%, $n = 50$). Levene's test did not confirm equal variances for motivation ($F = 5.507$, $p = .001$) or achievement ($F = 3.109$, $p = .029$), but Welch's test did confirm the equality of means for the section on motivation ($p =$

.000) and the section on achievement (p = .000). One-way ANOVA showed a statistically significant difference between the responses for these four groups for both motivation (F(3,137) = 21.693, p = .000) and achievement (F(3,131) = 27.455, p = .000). Using Games-Howell for post hoc analyses, the score on the motivation section for the one to 25% group (M = 2.89, SD = .295) was significantly different from both the 51 to 75% group (p = .001, M = 3.27, SD = .366) and the 76 to 100% group (p = .000, M = 3.57, SD = .507). It was also discovered that the motivation score for the 26 to 50% group (M = 2.98, SD = .309) was significantly different from both the 51 to 75% group (p = .006, M = 3.27, SD = .366) and the 76 to 100% group (p = .000, M = 3.57, SD = .507). The Games-Howell post hoc for achievement indicated that the one to 25% group (M = 2.95, SD = .303) was significantly different from the 26 to 50% group (p = .046, M = 3.22, SD = .434), the 51 to 75% group (p = .000, M = 3.62, SD = .397), and the 76 to 100% group (p = .000, M = 3.88, SD = .534). As one would expect, the mean scores for each group increased on the motivation portion of the survey as the percentage of time reported increased. The educators who reported that mastery learning was effective one to 25% of the time had a mean score of 2.89 (SD = .295) while those who felt it was effective 76 to 100% of the time had a much higher mean score of 3.57 (SD = .507). Similarly for the section on academic achievement, the participants who perceived that mastery learning was effective one to 25% of the time had a lower mean score of 2.95 (SD = .303) while the teachers who reported that it was effective 76 to 100% of the time had a higher mean score of 3.88 (SD = .534).

In order to gauge the survey participants' levels of confidence and understanding of mastery learning, item number nine asked teachers to rate their understanding of mastery learning on a scale of one to 100 with one being *poor* and 100 being *outstanding*. Respondents were again split into quartiles based on their responses, and in comparing these four groups,

equal variances could not be assumed for the section on motivation ($F = 4.737$, $p = .004$), but Levene's test did reveal equal variances for the section on academic achievement ($F = 1.821$, $p = .146$). Having stated this, one-way ANOVA confirmed that there was no statistical difference between the groups for academic motivation ($F(3,137) = 1.834$, $p = .144$) or achievement ($F(3,131) = 1.213$, $p = .307$). Despite the lack of statistical significance, it should be noted that for the academic motivation portion of the survey, the mean gradually increased as the teachers' reported levels of understanding increased. For motivation, the mean for the group in the lowest quartile (2.84%, $n = 4$) was 3.05 ($SD = .358$) while the group in the uppermost quartile (60.28%, $n = 85$) reported a mean of 3.32 ($SD = .554$). For the academic achievement portion of the survey, the mean fluctuated slightly across the four groups regardless of the respondents' perceived levels of understanding. In relationship to the academic achievement portion of the survey, the group in the lowest quartile for level of understanding reported a mean of 3.38 ($SD = .451$) while the group in the second to lowest quartile reported a mean of 3.50 ($SD = .401$). The third quartile had a mean of 3.37 ($SD = .481$) for achievement, and the uppermost group had a mean of 3.58 ($SD = .621$).

Like the previous survey item, item number 10 was included in the survey in order to assess the participants' levels of confidence and understanding of mastery learning. For this survey item, teachers were asked to rate their own ability for teaching another educator how to implement mastery learning on a scale of one to 100 with one being *poor* and 100 being *outstanding*, and participants were again split into quartile groups based on their responses. In comparing these groups with part two and part three of the survey, Levene's test did not confirm equal variances for motivation ($F = 5.944$, $p = .001$); however, Welch's test did confirm the equality of means for this section ($p = .020$). Levene's test confirmed that equal variances could

be assumed for the survey section related to academic achievement (F = 1.933, p = .127). One-way ANOVA revealed that the results of these comparisons were not significant for either motivation (F(3,137) = 2.385, p = .072) or achievement (F(3,131) = 2.100, p = .103). Having stated this, it is worthy to note that the means in each section increased as the educator's confidence level for teaching their peers how to implement mastery learning increased. The lowest quartile group (9.93%, n = 14) reported a mean of 3.04 (SD = .261) for motivation and a mean of 3.28 (SD = .485) for achievement, and the highest quartile group (43.26%, n = 61) reported a mean of 3.34 (SD = .583) for motivation and a mean of 3.60 (SD = .635) for achievement.

Teachers were also asked to report the percentage of time they perceived themselves reteaching concepts or providing additional learning opportunities to students based on assessment results; this being one of the core instructional methods implemented by those adopting mastery learning methodologies in their classrooms. Teachers were again divided into four groups based on the percentage of time they reported: one to 25%; 26 to 50%; 51 to 75%; or 76 to 100%. Levene's test did not confirm equal variances for motivation (F = 3.568, p = .016); although, Welch's test again confirmed the equality of means for this section (p = .004). Levene's test confirmed equal variances for the section related to academic achievement (F = 2.463, p = .065), and one-way ANOVA found that the results between these groups for the section on motivation (F(3,136) = 3.517, p = .017) and achievement (F(3,130) = 4.499, p = .005) were statistically significant. Due to the unequal variances, Games-Howell was used for post hoc analyses of motivation and revealed a significant difference (p = .013) between the one to 25% group (M = 2.83, SD = .327) and the 76 to 100% group (M = 3.33, SD = .522). For motivation, Games-Howell also displayed a significant difference (p = .047) between the 26 to 50% group

(*M* = 3.11, *SD* = .255) and the 76 to 100% group (*M* = 3.33, *SD* = .522). Utilizing Tukey HSD for the achievement section, a significant difference (*p* = .039) was again revealed between the one to 25% group (*M* = 3.04, *SD* = .225) and the 76 to 100% group (*M* = 3.61, *SD* = .594). Tukey HSD also displayed a significant difference (*p* = .032) for achievement between the 26 to 50% group (*M* = 3.24, *SD* = .440) and the 76 to 100% group (*M* = 3.61, *SD* = .594). When comparing the four quartile groups, the mean steadily increased for motivation as the percentage of time that the teacher reported increased.

The next survey item asked teachers to share the percentage of time that students are allowed to make corrections on formative assessments, another core element of mastery learning. Participants were again divided into quartiles, and Levene's test did not confirm equal variances for motivation (*F* = 4.881, *p* = .003); although, Welch's test did confirm the equality of means (*p* = .020). Levene's test confirmed equal variances for the section related to academic achievement (*F* = 2.550, *p* = .059), and one-way ANOVA confirmed that the results were not statistically significant for motivation (*F*(3,130) = 1.367, *p* = .256) or achievement (*F*(3,125) = 1.915, *p* = .131). It is again worth noting that despite the findings of the one-way ANOVA, the mean for each section of the survey gradually increased as the percentage of time that teachers allowed their students to make corrections increased. For academic motivation, the one to 25% group (6.72%, *n* = 9) had a mean score of 3.08 (*SD* = .114) while the 75 to 100% group (73.13%, *n* = 98) had a mean score of 3.30 (*SD* = .520). For academic achievement, the one to 25% group had a mean score of 3.17 (*SD* = .258) while the 75 to 100% group had a mean score of 3.55 (*SD* = .604).

Summary of Results for Research Question 3

In comparing the demographic and implementation information that was collected in part one of the survey with the sections related to academic motivation and academic achievement, several points of interest were discovered. While the responses from each group based on years of experience were not found to be statistically significant, it was noted that the lowest mean score for motivation came from the respondent group with the least years of experience while the lowest mean score for academic achievement came from the group with most years of experience. The mean scores for motivation and achievement were higher for elementary teachers than secondary, and math was the individual subject area where mastery learning was most utilized and had the highest mean score for academic achievement. In comparing the two school districts that were surveyed, the results were found to be statistically different with District A reporting a higher mean score than District B. The teachers who were trained by peers reported the lowest mean scores on both sections of the survey while those trained by an expert in the field reported the highest scores. As the teachers' reported times for implementation and the amount of time they perceived mastery learning to be effective increased, so did the mean scores for both motivation and achievement. Similarly, as the amount of time that teachers perceived themselves reteaching concepts and providing additional learning opportunities based on assessment results increased, so to did their mean scores for both motivation and achievement. In other words, teachers who were trained by an expert and reported utilizing mastery learning at greater levels with reported higher levels of implementation fidelity, also reported higher mean scores for both student motivation and student achievement.

Summary

Utilizing the results from a thirty-six-question survey, this chapter provided a data analysis of my research on teachers' perceptions of mastery learning. As in previous chapters, the purpose statement and research questions for this study were provided. From part one of the survey, participant demographics were presented along with teachers' responses to survey items regarding their understanding and implementation of master learning methodologies. In relationship to research question one, data related to academic motivation were also presented based on positive and negative behavior outcomes. The data related to academic achievement were also discussed in relationship to research question two, and in response to research question three, the results of one-way ANOVAs comparing the information collected from part one of the survey with parts two and three were also included.

CHAPTER FIVE: CONCLUSIONS

Chapter five presents an overview of the study, major findings for each research question, findings related to the existing literature, and implications for school leaders. The limitations for this study as well as next steps for future research have also been included.

Purpose Statement

The purpose of this study was to explore teachers' perceptions of mastery learning. My study first sought to determine if there was a significant difference between teachers' reports of students' academic motivation levels based on whether the students received instruction using mastery learning strategies. My study also aimed to determine teachers' perceptions of the effectiveness of mastery learning in regard to students' academic achievement. Several independent variables were collected in this study including the degree to which mastery learning was implemented, teachers' genders, years of experience, levels of training, content areas, and grade levels. The dependent variables were the perceptions of teachers about mastery learning, which were collected from a survey using a five point Likert-type scale (1 = greatly decreased to 5 = greatly increased). In addition, teachers were asked to provide narrative comments in response to the question, "Please describe the type of students for which you feel mastery learning is most beneficial."

Research Questions

The research questions that guided this study are as follows:

1. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' academic-motivation levels?
2. What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' overall academic achievement?

3. Are there differences in teachers' perceptions of the effectiveness of mastery learning based on demographic variables and levels of training?

Review of Research Methods

This was a survey-based research study that primarily utilized quantitative data. For this study specifically, my sample included teachers from two separate school districts that border one another in northeastern Indiana. Each school district received similar training on mastery learning strategies from an expert in the field, Dr. Thomas Guskey. After receiving this training, several teachers then began implementing mastery learning strategies into their classroom. This implementation represented the treatment for this study, and the effects of the treatment were measured through the use of a survey that measured teachers' perceptions post-treatment. The survey utilized a Likert-type scale and asked teachers for responses related to changes in students' academic-motivation levels, perceptions of school, and academic achievement. The survey also contained one open-ended response item, and teachers were asked to provide narrative comments in response to the statement, "Please describe the type of students for which you feel mastery learning is most beneficial."

I employed descriptive and inferential statistical analyses techniques. Descriptive statistics were used to display the degree to which mastery learning was implemented, teachers' genders, years of experience, levels of training, content areas, grade levels, and teachers' perceptions of mastery learning's effectiveness per the Likert-type scale questions. The reported descriptive statistics included frequencies, means, percentages, and standard deviations to describe the participants' demographics and perception responses.

One-way ANOVAs were utilized to analyze the differences between the demographic and perception-based items in part one of the survey with the perception-based questions in parts

two and three, which focused on students' academic motivation and academic achievement. It should also be noted that the questions in my survey are based on research related to mastery learning and the specific characteristics of mastery and performance goal orientations as outlined in my theoretical framework.

Major Findings Specific to the Literature

Research Question 1

The first research question was, "What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' academic-motivation levels?"

The perceptions of educators were measured through a researcher-designed quantitative survey instrument with items in part two of the survey being specifically written to better understand teachers' perceptions of mastery learning's influence on students' academic-motivation-related behaviors. These survey items were designed using goal orientation theory (Dweck, 1986; Kaplan & Maehr, 2007) as a framework, and the described behaviors were based on previous research that has been conducted regarding mastery learning's influence in the classroom.

In Benjamin Bloom's 1968 research article, *Learning for Mastery*, he communicated his belief that the implementation of mastery learning in the classroom would foster improved levels of motivation in students (Bloom, 1968; Guskey, 2007). Since this time, several researchers have supported the notion that the application of mastery learning methodologies in the classroom has had a positive influence on motivational characteristics and behaviors within students (Guskey, 2007; Kahraman, 2018; Lee et al., 2016; Madjar & Chohat, 2017). Despite this research, mastery learning has yet to present itself as a dominant instructional method in our nation's school. As the function of schools and the needs of students have evolved in recent years (Bortz, 2019;

Breiner, 2015; Dee et al., 2013; Grissom et al., 2014; Lopez-Castedo et al., 2018; Shamsi et al., 2019), it is appropriate to revisit the potential influence that mastery learning can have on various aspects of students' academic motivation.

In surveying teachers' perceptions of mastery learning through a five-point Likert-type scale, this study found that the modern-day educators who were sampled consistently felt that mastery learning has had a positive influence on characteristics related to academic motivation. Through the survey, teachers reported perceived decreases in many negative student behaviors and increases in positive student behaviors after implementing mastery learning in their classrooms. These results are supported by the mean scores for the motivation-related survey items as the overall means for all but one survey item fell in the "slightly decreased" range for the negative behaviors and the "slightly increased" range for the positive ones. After coding the qualitative responses, 37 comments reflected favorably on mastery learning's influence on academic motivation while 26 of the comments communicated negative outcomes after implementing mastery learning. Taking these results into consideration, the influence of mastery learning appeared to be stronger in specific areas while its influence was less pronounced in others.

After analyzing the survey responses for the described negative behaviors, there are two areas where mastery learning appeared to have the greatest positive influence. Students' anxiety about their grades had the lowest mean score (M = 2.28, SD = 0.78) with over half of the surveyed educators reporting that they have perceived either a slight or great decrease in this area after implementing mastery learning. This finding is consistent with previous research (Johnson et al., 2017). Anxiety in students is a rising mental health concern in our nation's schools (Conroy et al., 2021); therefore, this is a valuable data point of which educational leaders should

take note. The survey responses also indicated that many teachers perceived a decrease in the likeliness that students will be embarrassed by the need to complete remediation exercises (M = 2.51, SD = 0.97) with nearly half of educators indicating that they have perceived a slight or great decrease in this behavior. This implies that mastery learning's implementation has aided students in better understanding the importance of making mistakes and corrections as part of the learning process, and as Madjar and Chohat's (2017) research points out, this can lead to higher levels of emotional and behavioral engagement. Furthermore, students gaining a better understanding of mistakes and corrections as part of the learning process and reducing students' feelings of embarrassment can also lead to an increased sense of belonging in students and improved school climates that emphasize the importance of learning. Ultimately, this type of environment will result in improved academic outcomes for students (Shindler et al., 2016). Potentially these decreased levels of anxiety and embarrassment may also be contributed to the development of a mastery goal orientation, which has been shown to support positive coping strategies and a focus on personal development (Kahraman, 2018; Kaplan & Maehr, 2007).

It should also be noted that the only negative behavior with a mean score indicating an increase in frequency was the likeliness that students will procrastinate on completing assignments (M = 3.43, SD = 1.01). While many teachers did not perceive a change in this behavior, over one-third of survey respondents indicated a slight or great increase in the procrastination of students. This concern was also communicated in educators' responses to the open-ended survey item as one teacher wrote, "Those who struggle with organization and turning their work in on time will procrastinate." This is consistent with previous research (Emery et al., 2018) and not surprising as mastery learning's implementation allows multiple opportunities for students to display mastery-levels of understanding and this can often lead to extended time

schedules and deadlines. For classrooms and schools choosing to adopt mastery learning methodologies, this is an area of concern that should be discussed and addressed throughout the implementation process.

Through the analysis of mastery learning's influence on positive behavior characteristics in the area of academic motivation, it appeared that the classroom environments had benefited greatly. The highest mean score in part two of the survey was for the item asking teachers to rate positive changes in the student/teacher relationship (M = 3.62, SD = .86) with over half of the surveyed teachers indicating a perceived increase in this area. Previous research has concluded that this positive behavior is a likely outcome when students develop a mastery goal orientation (Kaplan & Maehr, 2007; Turner et al., 2013), and the implications for changes in this area are numerous as this could lead to an increased likelihood that students will utilize their teachers as a resource, students may be more engaged in the classroom, and teachers may find greater satisfaction in their daily working conditions. Similarly, another area where educators perceived an increase was perceived by educators was in students' positive attitudes toward the subject areas they taught (M = 3.37, SD = .73) with over one-third of respondents reporting an increase. This finding is supported by the results of Adeyemo's and Babajide's research (2014), who postulated that these positive changes in students' attitudes are likely to lead to greater feelings of satisfaction in school and increased feelings of worth for the content and concepts they study.

Research Question 2

The second research question was, "What are teachers' perceptions of the effectiveness of mastery learning instructional methods in regard to students' overall academic achievement?"

Similar to part two of the survey, part three measured the perceptions of educators through a researcher-designed quantitative survey instrument with items being specifically

written to better understand teachers' perceptions of mastery learning's influence on students' overall academic achievement. These survey items were designed using goal orientation theory (Dweck, 1986; Kaplan & Maehr, 2007) as a framework, and the described behaviors and outcomes were based on previous research that has been conducted regarding mastery learning's influence in the classroom.

When Bloom and his colleagues developed the strategies and methodologies that have become known today as *mastery learning*, one primary goal was to improve the academic achievement of a greater number of students in our schools as evidenced by his belief that up to 95% of students can receive the grade designation of "A" in their courses with the proper amount of time and learning conditions (Bloom, 1968). Numerous studies (Adeyamo & Babajide, 2014; Arlin & Webster, 1983; Lee et al., 2016) have supported the notion that mastery learning's implementation will increase the academic achievement of students, yet it remains a sparsely used methodology. In conjunction with better understanding mastery learning's influence on motivation, it is prudent to also assess teachers' perceptions of how this methodology impacts various elements of students' academic achievement in the modern-day classroom.

In surveying the perceptions of educators through a five-point Likert-type scale, this study found that the sampled teachers consistently feel that mastery learning had had a positive influence on the overall academic achievement of students. Each item in part three of the survey asked teachers to rate perceived changes in positive behaviors and outcomes of students, and the means for all of these survey items displayed increases in their respective areas. Additionally, 61 out of 111 open-ended responses referred to mastery learning's influence on academic achievement, and 54 of these 61 responses communicated positive perceptions.

Especially worthy of note, when teachers were asked to rate the perceived change in the number of students in their classrooms capable of learning the content and concepts being taught at a mastery level after the implementation of mastery learning (M = 3.70, SD = 0.75), well over half of these educators indicated that they had perceived an increase, and 12.59% (n = 17) perceived a great increase. Similarly, over half of survey respondents reported an overall increase in the overall academic performance of students after implementing mastery learning (M = 3.63, SD = 0.71). As one of the primary functions of our schools is to educate students based on prescribed academic-content standards, these perceptions of the professionals working most closely with students is an important element to consider.

Taking teachers' perceptions of mastery learning's influence one step further, the survey results also reflected positively on specific types of learners. The survey item that asked teachers to rate perceived changes in the academic achievement of lower-achieving students after implementing mastery learning (M = 3.73, SD = .75) had the highest mean score in part three of the survey, and no one reported a great decrease in academic achievement for these students. For survey item 13, one teacher wrote, "I feel that my 'typical' lower achieving students felt more comfortable asking for help or receiving extra help once mastery learning was implemented into our normal routine." In contrast to the findings of Slavin's (1987, 1989) research, it is also essential to note that nearly half of the survey respondents teaching in the modern-day classroom setting reported that they perceived an increase in academic achievement for higher-achieving students after implementing mastery learning (M = 3.47, SD = .78), and only 5.92% (n = 8) of teachers perceived a decrease for high-achievers. Additionally, 17 out of 111 (15.32%) qualitative responses for survey item number 13 indicated that the surveyed educators felt that mastery learning was most beneficial for the "average" or "mid-level" student. Based on this

compilation of survey responses, it appears that the continuation, and possibly expansion of, mastery learning's implementation should be strongly considered as the teachers in the two school districts surveyed indicated that it can be of benefit to all students when it comes to increasing academic achievement.

Congruent with the benefits foretold by Bloom (1968), educators also perceived an increase in the number of students who viewed them as a resource to their learning (M = 3.55, SD = 0.66). Similar to the previously mentioned results, which indicated improvements to the student/teacher relationship and increases in positive attitudes towards the subjects being taught, this finding has further implications for mastery learning's positive influence on the school environment and communicates the importance of learning in a supportive environment as opposed to one that is focused on "teaching to the test" (Horn, 2017). In relationship to goal orientation theory, students changing their perspectives for the role of the teacher in this way also corresponds with the adaptation to a mastery goal orientation (Kaplan & Maehr, 2007).

Based on previous research, the primary argument delivered by those opposed to mastery learning was that it took too much time to implement, and this loss of time came at the expense of lesser-valued subject areas and higher-achieving students (Arlin & Webster, 1983; Slavin, 1987, 1989). Having stated this, the vast majority of teachers in my study perceived either an increase or no change (80.0%, n = 108) in the effective use of instructional time after implementing mastery learning (M = 3.27, SD = 1.04). This differing result could be due to a change in how the school day is structured in comparison to previous years or it could be related to teachers' perceptions and definitions of "effective." Either way, the use of instructional time does not appear to be a "roadblock" to mastery learning's implementation in the modern-day classroom.

Research Question 3

The third research question was, "Are there differences in teachers' perceptions of the effectiveness of mastery learning based on demographic variables and levels of training?"

The information collected in part one of the survey was compared with the responses collected in parts two and three in order to gain a better understanding of how teachers' demographics and levels of training may have impacted their perceptions of mastery learning's influence in the classroom. One-way ANOVAs were utilized for analyses to determine if the differences in responses between groups were statistically significant. To depict an accurate representation of teachers' perceptions of mastery learning's influence on negative and positive behaviors, the survey items representing negative behaviors were reverse-coded. These survey items were numbers 14, 15, 17, 18, 19, 24, 25, 27, and 28.

The opinions of educators and the application of teaching methodologies may change with experience; therefore, the survey respondents were divided into four groups based on their years of teaching experience, and the responses for parts two and three of the survey were analyzed. The largest group of teachers completing the survey had 16 or more years of teaching experience (n = 61), and this same group also reported the lowest mean score for the academic achievement (M = 3.46, SD = .523) portion of the survey. Interestingly, the lowest mean for the motivation portion of the survey (M = 3.17, SD = .331) came from the group with five or fewer years of teaching experience (n = 24). Having stated this, one-way ANOVA revealed that the responses between the experience groups was not significant for motivation (F(3,137) = 0.483, p = .695) or achievement (F(3,131) = .403, p = .751). Although no significant differences were found, moving forward, it is important to note that the lowest scores for the two targeted areas in this study came from each extreme. Teachers with more experience are veterans in the classroom

whose voices should be considered and respected, and teachers new to the profession are sharing their perceptions based on a limited number of experiences from which they can draw. Therefore, further research should be conducted to tease out the factors that are contributing to the perceptions of mastery learning's influence for these two groups.

Just as the needs of students change throughout their educational careers, so to do the instructional strategies and methodologies utilized by their teachers. In comparing the perceptions of elementary and secondary-level teachers, the mean scores were significantly higher for the elementary group on both the motivation ($F(2,138) = 7.285$, $p = .001$) and achievement ($F(2,132) = 9.775$, $p = .000$) portions of the survey. There are various explanations for why the elementary teachers perceived mastery learning to have a greater positive influence. For one, elementary teachers generally work with their classes for greater portions of time each day and across more varied subject-areas as opposed to their secondary counterparts. In this setting it is feasible that the instructors gain a better understanding of their students individual learning needs and have more opportunities to build positive relationships with their students; characteristics that Bloom (1968) pointed out are necessary for mastery learning to be effective. It is also possible that mastery learning was perceived as being more effective at the elementary level because the students had fewer preconceived notions regarding the learning process in school. This may be in opposition to the attitudes of secondary students as mastery learning was introduced to these students after they had already spent several years learning how to "play the game of school." This idea was reiterated in several teachers' responses to survey item 13, and is reflected in one teacher's statement, "The students don't care about how they perform on the first assessment because they know they will get to do it again."

Also worthy of further consideration is the fact that District A reported significantly higher scores (M = 3.69, SD = .541) on the academic achievement part of the survey in comparison to District B (M = 3.35, SD = .539). Both districts are located in the same region of the country, serve similar populations of students, and received training during the same time period and from the same expert in the field. As previous research has confirmed, certain conditions and attitudes must exist in the school environment in order for mastery learning to be effective (Bloom, 1968; Emery et al., 2018; Goksoy, 2018). These conditions include the belief that all students are capable of learning the material being taught at a mastery level, and the ability of the instructor to differentiate the delivery of instruction. The difference in the perceptions of teachers between these school districts could be due to a difference in their school climates, application of mastery learning, administrative support, or even their professional development opportunities.

When considering the various ways that teachers initially learned about and began implementing mastery learning, there was a significant difference between the perceptions of teachers based on the professional development they received. The teachers who were trained by Dr. Guskey reported the highest mean scores for both motivation (M = 3.45, SD = .536) and achievement (M = 3.68, SD = .595). This could be due to the detailed information that was presented to the teachers directly from the expert along with opportunities to ask questions and reflect on strategies between professional development sessions. It could also be related to the notion that the teachers who committed to the training already had an interest in and disposition for implementing mastery learning that increased the likelihood of successful implementation. The teachers who were trained by their peers reported the lowest mean scores for motivation (M = 3.03, SD = .315) and achievement (M = 3.28, SD = .469). This does not mean that the peer-

trained group perceived mastery learning's to have a negative influence; however, it does suggest that the way in which professional development is delivered to teachers should be thoroughly thought out and considered as these steps and decisions may likely impact the success of the concepts and/or initiatives being presented.

In comparing teachers' perceptions of mastery learning's influence on student behavior and outcomes across the various subject areas, math was not only reported as the individual subject area where mastery learning was most often applied, but it was also perceived as the individual subject area where mastery learning had the greatest influence on academic achievement (M = 3.60, SD = .585). Like literacy development, math instruction begins at the very beginning of children's educational careers. If mastery learning truly has a positive influence on math instruction and academic achievement in this area, then the integration of mastery learning methodologies in math lessons, especially at the early stages of development, may have long-term positive effects on the development of math-related skills for students.

When asked to report the perceived amounts of time that teachers implemented mastery learning and found it to be effective, the mean scores increased on both the motivation and achievement sections as the reported times increased. This could be related to the idea that the more teachers utilized mastery learning, the more students began to adapt and benefit from it; however, it is also possible that the educators who perceived initial success, implemented mastery learning more often because they found it to be beneficial. Conversely, it is also possible that the teachers who perceived fewer benefits from mastery learning's implementation, utilized it less often, and the fewer perceived benefits were due to a decrease in time implemented.

To better understand the respondents' understanding and application of mastery learning, they were asked to report the perceived percentage of time that they retaught concepts or

provided additional learning opportunities to students based on assessment results. There was a statistically significant difference between teachers based on these reported times and their perceptions of mastery learning's positive influence in the classroom. As the reported amounts of time increased, the means also increased for both the motivation and achievement sections of the survey. Again, this could be a result of initial success, or lack thereof, influencing the amount of time that the instructor was willing to dedicate to mastery learning, but this finding could also be related to these mastery-learning-related strategies truly being effective in improving motivation and achievement-related qualities in students. As one teacher wrote in response to item 13, "Mastery learning is beneficial to all students. It emphasizes that becoming a lifelong learner is more important than a grade. That learning is a journey to be enjoyed."

Revisiting the Theoretical Framework

As this study was viewed through the lens of *goal orientation theory*, it is important to revisit the theoretical framework's connection to this study's findings. Goal orientation theory focuses on *why* and *how* people attempt to achieve a task (Dweck, 1986; Kaplan & Maehr, 2007), and the survey utilized for this study was specifically written with goal orientation theory in mind because it provides a theoretical perspective by which the effects of instructional methods on students' motivation in school can be better understood. Specifically, previous research has established clear relationships between students' adoption of a mastery goal orientation and positive outcomes in the school setting, and the practices that a school adopts and how a teacher chooses to structure his/her classroom may influence the orientation adopted by students (Dweck, 1986; Emery et al., 2018; Kaplan & Maehr, 2007; Meece et al., 2006; Wolters, 2004).

In reviewing the major findings for this study, there is evidence to suggest that teachers have perceived changes in students and their behaviors after implementing mastery learning that indicate the positive outcomes associated with students adopting a mastery goal orientation. For example, a large number of teachers perceived decreased levels of anxiety and embarrassment in students, which is indicative of the development of a mastery goal orientation as characterized by the development of positive coping strategies and a focus on personal development (Kahraman, 2018; Kaplan & Maehr, 2007). Survey results also indicated that the majority of respondents perceived positive changes in the student/teacher relationship, and a large number of teachers perceived an increase in the number of students who viewed them as a resource to their learning. Again, previous research supports the notion that students will change their view of the teacher's role in the learning process and the student/teacher relationship will improve when students adopt a mastery goal orientation (Kaplan & Maehr, 2007; Turner et al., 2013).

Limitations of the Study

This study had limitations related to sample size, geographical locations, and teacher variability. Participation was also limited, and in some cases, there was an imbalance of participants. Survey bias must also be considered as well as the role of the researcher.

While the sample size for this study provided data that can contribute to the research on mastery learning's effectiveness, the sample size was not large enough to stand alone in making conclusive results for the state or nation's educational community. It should also be noted that each district utilized for this study represented suburban communities with similar demographics, and teachers' perceptions of mastery learning and the components analyzed in this study may differ in urban or rural communities that serve students with differing experiences and backgrounds. In sum, the results of this study are not generalizable to the larger population.

Survey bias always exists in survey-based research, and every attempt was made to eliminate bias from the survey items. Teacher experiences and attitudes were limiting factors in this study as many of the participating teachers initially volunteered to take part in the mastery learning training and these individuals possessed an array of years of experiences and taught in a variety of content areas. The teachers also received varying levels of training as some were directly trained by an expert in the field, some were trained by their peers, and others have implemented mastery learning based on their own acquired knowledge and understandings. It is also possible that survey data based on teachers' perceptions may have been skewed by individual beliefs as supporters of mastery learning may have exaggerated the methodology's effectiveness while those who do not support mastery learning may have choose not to respond to the survey. Furthermore, it should be noted that the survey utilized in this study partially relied on teachers' memories as the survey only measured teachers' perceptions post-treatment, and survey data was not collected before the mastery learning training took place.

In terms of participation, the survey developed for this study was electronically distributed to approximately 950 certified teachers. Responses were requested from teachers who self-identified as utilizing mastery learning in their classrooms and who had a minimum of two years of teaching experience. One hundred fifty completed surveys were ultimately submitted and considered "usable" for analysis, giving an overall response rate of 15.8%.

Another limitation of this study was an imbalance of participants in some areas. For example, a greater number of females participated in this study versus males making inferential analysis not possible for these two groups. There were also a greater number of secondary teachers than there were elementary teachers participating in the study; however, the survey

results for these groups were still found to be suitable for inferential analyses and statistically significant.

Finally, the role of the researcher was a limitation. The researcher in this study was a building level administrator in one of the two districts surveyed. While the respondents were promised that their responses would remain anonymous, some of the teachers who completed the survey worked in the building led by the researcher, and it is possible that some teachers decided not to respond due to my role.

Implications for Action

Recommendations for Educational Leaders

A major goal for school leaders should be to improve and enrich students' experiences in school by supporting teachers in the utilization of instructional strategies that engage and motivate students (Alley, 2019). Given this idea and the results of this study, the author recommends that school administrators strongly consider introducing and/or encouraging master learning to the educators in the buildings and districts they lead. Having stated this, there are specific factors that must be addressed in order to mastery learning to positively influence students and the classroom environment.

First and foremost, administrators must make an accurate assessment of the climates in their schools. Before mastery learning can be successfully implemented, educators have to adopt and convey a mastery goal orientation that communicates to students that the goal is to improve competence and master skills (Emery et al., 2018) as opposed to a performance orientation that denotes success by making comparisons between individuals as opposed to a fixed standard, making it impossible for everyone to be successful (Bloom, 1968; Senko et al., 2011). Through hiring practices, collaboration times, and professional development opportunities, school leaders

must establish school-wide understandings that **all** students are capable of mastering the content and concepts being taught and presented by their teachers (Goksoy, 2018).

It is also imperative that school leaders ensure that the teachers in the schools they lead truly understand how to differentiate, remediate, and enrich instruction. As the students in our classrooms have a wide range of abilities and interest, teachers must have access to professional development opportunities, collaborative experiences with their peers, and instructional resources that support them in providing differentiated learning opportunities to students with varied strengths and weaknesses. Similarly, teachers need assistance in understanding how and when to implement remedial instruction to students who are not grasping the content and concepts being presented, and conversely, educators need support in understanding how to provide meaningful enrichment experiences for students who demonstrate mastery more quickly than their peers. All of these needs come at the expense of time, and this time, as well as better understanding of how to manage classroom time, are essential elements that must be in place in order for mastery learning to successfully influence students' motivation and achievement levels.

Finally, the author recommends that mastery learning be implemented with great commitment and attention to detail at the earliest levels of formal education. If students begin their educational careers in an environment that communicates mistakes and corrections are a natural part of the learning process and emphasizes the importance of persevering through difficult concepts as all students are capable of mastery, then it is feasible that these students will have a deeper understanding of the learning process, will maintain their enthusiasm for learning, and will no longer feel they are in academic competition with other students.

Recommendations for Future Research

This study aimed to better understand teachers' perceptions of mastery learning's influence on students' academic motivation and achievement, as this has been an underrepresented area in the body of research on mastery learning. It is also important that the perception data collected from teachers is taken in context as the needs of students have changed over time. Having stated this, future research is recommended in several areas in order to better understand this methodology's influence on students in the modern-day classroom.

With the small sample size used for this study and the limited demographics of students, it would be appropriate to collect similar perception data from a larger group of educators with more diverse student groups. As the overall results of this study reflected favorably on mastery learning's influence, a greater sampling of teachers would provide further insight into teachers' perceptions of mastery learning's influence on motivation and achievement.

Further research regarding the perceptions of students and parents could also be a beneficial area of study. As the teachers in this study reported positive changes in areas such as anxiety-reduction and student/teacher relationships, the perceptions of students and parents regarding these same behaviors and outcomes could provide useful data that may either support or denounce the perceptions of teachers.

Diving deeper into one of the variables analyzed in this study, future research could also include further analysis of the relationship between teachers' years of experience and their perceptions of mastery learning's influence. While this study did not find a statistical difference between the experience-based groups, it was especially interesting that the lowest scores for achievement came from the group with the most experience. Better understanding the

perspectives of this group could help inform future decisions regarding professional development opportunities or curriculum adoptions.

Finally, it is recommended that future researchers seek to better understand any relationships that may exist between teachers' attitudes pre-implementation and their perceptions of mastery learning's influence post-implementation. Research in this area could offer valuable information that helps school leaders better understand the climate and professional development needs of their schools before moving forward with mastery-learning-related initiatives and may help to explain why teachers' perspectives post-implementation can sometimes differ so greatly

Summary

Mastery learning as it is known today was first introduced by Bloom and his colleagues in 1968. Since this time, it has been utilized sporadically throughout our nation's schools, and its implementation has been praised by supporters and denounced by naysayers. This study sought to better understand mastery learning's influence on the academic motivation and achievement of students based on the perceptions of teachers. This study also utilized the demographic and perception data collected from educators in this study in order to better understand any relationships that may have existed between these two areas.

In terms of mastery learning's influence on academic motivation, it appears that the teachers surveyed in this study have largely perceived the implementation of this methodology to have had a positive influence on motivation-related behaviors. After implementing mastery learning, teachers perceived a decrease in students' anxiety about their grades and a decrease in the likeliness that students will be embarrassed by the need to complete remediation exercises. As noted in this study, this is potentially valuable data given the rising mental health needs of the students in our nation's schools. The majority of educators participating in this study also

perceived positive changes in the student/teacher relationship, and several teachers reported that they perceived an increase in students' positive attitudes towards the subject areas they taught. Given these data points, these results speak well to mastery learning's potential impact on the school environment and the influence that mastery learning may have on guiding students towards adopting a mastery goal orientation.

The perception data collected for this study also indicated that the majority of teachers perceived mastery learning's implementation to have a positive influence on academic achievement as indicated by the mean scores for every survey item in part three of the survey. Over half of the surveyed educators reported that they perceived an increase in the number of students capable of learning the content and concepts being taught at a mastery level, and they also perceived an overall increase in the academic performance of students. From low achievers to high achievers, the perception data that was collected indicated that the teachers participating in this study felt that students of all ability levels had benefited from mastery learning. To further support mastery learning's influence on the school environment, perception data also indicated that mastery learning's implementation increased the number of students who viewed their teacher as a resource, and contrary to previous research, 80% (n = 108) of respondents felt that the effective use of instructional time either increased or remained the same after implementing mastery learning.

One-way ANOVAs were used to analyze part one of the survey with parts two and three, and several interesting points were discovered. Elementary educators reported higher mean scores on the motivation and achievement portions of the survey, and these results may provide valuable insight regarding the effectiveness of mastery learning's implementation and the age at which students are introduced to this methodology. It is also worthy to note that District A

reported significantly higher scores than District B on the achievement portion of the survey. This could be due to a variety of factors including differences in school climates, administrative support, or professional development opportunities. The differences in teachers' perceptions were also statistically significant based on the type of training they received as the teachers trained by an expert reported the highest scores for both motivation and achievement. These data may provide useful insight for school leaders in better understanding the influence of professional development. Furthermore, math was the subject area where mastery learning was the most utilized by the sample group, and math teachers reported the highest mean score for academic achievement. Given these results, school leaders who are considering introducing mastery learning to teachers in the buildings they lead may want to begin with a focus on math instruction.

The author of this study recommends that school leaders consider introducing mastery learning in the schools and districts they lead. In order to aid in the successful implementation of mastery learning, the author also recommends that school leaders make an accurate assessment of the climates in their buildings and work towards building a common understanding amongst the educators with which they work that all students are capable of achieving a mastery level of understanding. It is also highly recommended that before introducing this methodology to teachers, school leaders provide opportunities for teachers to better understand how to differentiate, remediate, and enrich instruction for students. Finally, school leaders should also consider introducing mastery learning to the youngest learners in their school systems so that these young people may matriculate through their educational careers in an educational environment that recognizes mistakes as part of the learning process and emphasizes that

importance of persevering through difficult concepts until they reach a mastery level of understanding.

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Appendix A

Survey for Teachers about Mastery Learning

The purpose of this survey is to gain a better understanding of mastery learning's influence on students' academic performance and motivation as perceived by teachers. As you complete this survey, please reflect on and consider your teaching practices and classrooms prior to and after the implementation of mastery learning methodologies.

Part 1

Please mark the appropriate box:

1. **Gender**
   ☐ Male ☐ Female ☐ Other/Prefer Not to Respond

2. **Years of teaching experience**
   ☐ 5 or less ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ Over 21

3. **Grade level(s) taught (more than one may be selected)**
   ☐ K ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

   ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

4. **School District**
   ☐ District A ☐ District B

5. **Level of training on mastery learning**

   ☐ I completed the entire course with Dr. Guskey.

   ☐ I began the course with Dr. Guskey, but I did not complete it.

   ☐ I was trained by a peer that completed the course with Dr. Guskey.

   ☐ I began implementing mastery learning in my classroom based on my own research and understandings.

6. **Content area where mastery learning has been applied (more than one may be selected)**
   ☐ English ☐ Math ☐ Science ☐ Social Studies ☐ Foreign Language

   ☐ Art ☐ Music ☐ Technology ☐ Careers ☐ Other

7. **For the subject area(s) you selected on question 6, approximately what percent of the time are you implementing mastery learning strategies?**

   Use Sliding Scale

8. **Approximately what percent of the time do you feel mastery learning is effective?**

   Use Sliding Scale

9. **On a scale of 1 to 100, how would you rate your understanding of mastery learning? (1 = poor understanding, 100 = outstanding understanding)**

   Use Sliding Scale

10. **On a scale of 1 to 100, how would you rate your ability to teach another educator how to implement mastery learning?**
    (1 = poor ability to teach others, 100 = outstanding ability to teach others)

    Use Sliding Scale

11. **I reteach concepts and/or provide additional learning opportunities to students based on assessment results approximately _____ percent of the time.**

    Use Sliding Scale

12. **In my classes, students are allowed to make corrections on formative assessments _____ percent of the time.**

    Use Sliding Scale

13. **Please describe the type of students for which you feel mastery learning is most beneficial.**

    Provide a text box to allow open-ended responses

Please indicate your responses to the following statements using the provided scale:

Part 2: Motivation

After implementing mastery learning in my classroom…

14. …students' anxiety about their grades…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

15. …students' concerns for the letter grades they receive have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

16. …students' positive attitudes towards the subject area I teach have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

17. …students' concerns for outperforming their peers has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

18. …disruptive behavior in the classroom has...

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

19. …students' focus on comparing themselves to their peers has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

20. …positive changes in the student/teacher relationship have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

21. …students' levels of responsibility for their own learning have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

22. …students' abilities to cope with academic-related adversity have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

23. …students' positive relationships with their peers has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

24. …students' motivation to outperform their peers on formative assessments has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

25. …the likeliness of students to cheat on assignments has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

27. …the likeliness that students will be embarrassed by the need to complete remediation exercises has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

28. …the likeliness that students will procrastinate on completing assignments has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

29. …I feel that students' academic motivation levels have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

Part 3: Academic

After implementing mastery learning in my classroom…

32. …the number of students who view me as a resource to their learning process has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

33. …student growth in the area of problem-solving has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

34. …student engagement in collaborative learning experiences has...

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

35. …the effective use of instructional time has...

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

36. …the number of students capable of learning the content and concepts being taught in my classroom at a mastery level has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

37. …the overall academic performance of my students has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

38. …the academic achievement of lower-achieving students has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

39. …the academic achievement of higher-achieving students has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

Appendix B

Survey for Teachers about Mastery Learning
with References/Alignment to Goal Orientation Theory

The purpose of this survey is to gain a better understanding of mastery learning's influence on students' academic performance and motivation as perceived by teachers. As you complete this survey, please reflect on and consider your teaching practices and classrooms prior to and after the implementation of mastery learning methodologies.

Part 1

Please mark the appropriate box:

1. **Gender**
☐ Male ☐ Female ☐ Other/Prefer Not to Respond

2. **Years of teaching experience**
☐ 5 or less ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ Over 21

3. **Grade level(s) taught (more than one may be selected)**
☐ K ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

4. **School District**
☐ District A ☐ District B

5. **Level of training on mastery learning**

☐ I completed the entire course with Dr. Guskey.

☐ I began the course with Dr. Guskey, but I did not complete it.

☐ I was trained by a peer that completed the course with Dr. Guskey.

☐ I began implementing mastery learning in my classroom based on my own research and understandings.

6. **Content area where mastery learning has been applied (more than one may be selected)**

☐English ☐Math ☐Science ☐Social Studies ☐Foreign Language

☐Art ☐Music ☐Technology ☐Careers ☐Other

7. **For the subject area(s) you selected on question 6, approximately what percent of the time are you implementing mastery learning strategies?**

   Use Sliding Scale

8. **Approximately what percent of the time do you feel mastery learning is effective?**

   Use Sliding Scale

9. **On a scale of 1 to 100, how would you rate your understanding of mastery learning? (1 = poor understanding, 100 = outstanding understanding)**

   Use Sliding Scale

10. **On a scale of 1 to 100, how would you rate your ability to teach another educator how to implement mastery learning?**
    (1 = poor ability to teach others, 100 = outstanding ability to teach others)

    Use Sliding Scale

11. **I reteach concepts and/or provide additional learning opportunities to students based on assessment results approximately _____ percent of the time.**

    Use Sliding Scale

    (Bloom, 1968; Guskey, 2010)

12. **In my classes, students are allowed to make corrections on formative assessments _____ percent of the time.**

    Use Sliding Scale

    (Bloom, 1968; Guskey, 2010)

13. Please describe the type of students for which you feel mastery learning is most beneficial.

Provide a text box to allow open-ended responses

Please indicate your responses to the following statements using the provided scales:

<u>Part 2: Motivation</u>

After implementing mastery learning in my classroom…

14. …students' anxiety about their grades…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Johnson, Erwin, Kipp, & Beighle, 2017)

15. …students' concerns for the letter grades they receive have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Kaplan & Maeher, 2007)

16. …students' positive attitudes towards the subject area I teach have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery Orientation) (Adeyemo & Babajide, 2014; Johnson, Erwin, Kipp, & Beighle, 2017; Kahraman, 2018)

17. …students' concerns for outperforming their peers has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Senko, Hulleman, & Harackiewicz, 2011)

18. …disruptive behavior in the classroom has...

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Meece, Anderman, & Anderman, 2006)

19. …students' focus on comparing themselves to their peers has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Kaplan & Maehr, 2007; Meece et al., 2006)

20. …positive changes in the student/teacher relationship have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Emery, Sanders, Anderman, & Yu, 2018)

21. …students' levels of responsibility for their own learning have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery Orientation) (Horn, 2017)

22. …students' abilities to cope with academic-related adversity have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery Orientation) (Kahraman, 2018)

23. …students' positive relationships with their peers has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery Orientation) (Kaplan & Maeher, 2007)

24. …students' motivation to outperform their peers on formative assessments has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Emery, Sanders, Anderman, & Yu, 2018; Senko et al., 2011)

25. …the likeliness of students to cheat on assignments has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Performance Orientation) (Meece, Anderman, & Anderman, 2006; Senko, Hulleman, & Harackiewicz 2011)

27. …the likeliness that students will be embarrassed by the need to complete remediation exercises has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Emery, Sanders, Anderman, & Yu, 2018; Wolters, 2004)

28. …the likeliness that students will procrastinate on completing assignments has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Emery, Sanders, Anderman, & Yu, 2018)

29. …I feel that students' academic motivation levels have…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Bloom 1968; Guskey, 2007; Johnson, Erwin, Kipp, & Beighle, 2017; Meece, Anderman, & Anderman, 2006)

Part 3: Academic

After implementing mastery learning in my classroom…

32. …the number of students who view me as a resource to their learning process has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Bloom, 1968; Horn, 2017)

33. …student growth in the area of problem-solving has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery Orientation) (Kaplan & Maeher, 2007)

34. …student engagement in collaborative learning experiences has...

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Mastery/Performance Orientation) (Senko, Hulleman, & Harackiewicz, 2011)

35. …the effective use of instructional time has...

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Arlin & Webster, 1983; Bloom, 1971, 1987; Slavin, 1987)

36. …the number of students capable of learning the content and concepts being taught in my classroom at a mastery level has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Bloom, 1968; Carroll, 1963; Goksoy, 2018)

37. …the overall academic performance of my students has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Bloom, 1968)

38. …the academic achievement of lower-achieving students has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Arlin & Webster, 1983; Bloom, 1968)

39. …the academic achievement of higher-achieving students has…

0. Not Applicable
1. greatly decreased
2. slightly decreased
3. remained the same
4. slightly increased
5. greatly increased

(Arlin & Webster, 1983; Bloom, 1968)

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